LiteWare®

Design Tool
for

LiteTouch
Brilliant Solutions in Lighting Automation

Lighting Control Systems

Design Manual

Software Version 3.80.0
Manual Version: 3.5

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LiteWare 3.80 Design Manual

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What's New

This section lists notable changes from LiteWare version 3.70 to version 3.80. If you have been using LiteWare version 3.70, you should review this section.

Refer to *LiteWare 3.80.xx Version Information.doc* on the LiteWare 3.80 CD and on the LiteTouch Web site (*www.litetouch.com*) for a complete list of changes and bug fixes in version 3.80.

Added Engraving Library in Switch Properties

An engraving library has been added to LiteWare 3.8. Engraving text entered for all buttons is added to the engraving library. The engraving library contains all engraving text entered in all projects in LiteWare, so engraving text from any project is available to be used in any other project. You can select engraving text in the library from a drop-down list in Switch Properties. Refer to "Engraving Library" on page 109.

Added Engraving Icons in Switch Properties

You can now select from a list of icons or symbols to be engraved on a button instead of text. Refer to "Engraving Icon" on page 109.

New Scene Dimmer Option

You now have the option to select whether you want the LED on a Scene Dimmer button to act as a dimmer (light whenever the assigned loads are activated) or a scene (light only when the assigned loads are turned on to their preset levels). Refer to "Scene Dimmer (5000LC)" on page 126.

Changes in Billing View

The "Custom" column has been removed from the bill of materials. Items entered manually (using "Add Item") are automatically detected as manual entries. Refer to Chapter 11, "Billing" on page 173.

The "Update Bill of Materials" options have changed to reflect the revised method of recognizing manual entries. Refer to "Update Bill of Materials" on page 177.

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Design Basics 1

This chapter provides an overview of LiteTouch® design components, concepts, and program functions. For specific information about LiteTouch products, refer to the applicable LiteTouch documentation.

Job A *job* contains one complete lighting control design. One or more jobs can be saved to a "project database file," described below.

Project Database File A *project database file* is an ODBC database file that contains one or more jobs (see above). You can create as many project database files as you need for your design work. The LiteWare® 3.8 project database file uses a Microsoft® Access 97 format, and the database file can be viewed, if necessary, in Microsoft Access.

All project database files are saved with an *.lwd* extension. Refer to Chapter 4, "Database Functions" for information.

Program File The *program file* contains all keypad and load information and switch assignments in a form that can be uploaded to the CCU. The 5000LC CCU uses a single program file with a *.prg* extension. The Standard CCU uses a single program file with a *.def* extension. The Compact CCU uses a single program file with a *.cdf* extension. The Standard/Compact program file is also called a definition file.

Load A *load* is an electrical load. Any device controlled by the LiteTouch control system is considered a load. Loads are described by type (e.g., incandescent, fluorescent, low voltage, etc.) and their wattage and voltage ratings. Loads are normally identified from blueprints.

Load Group A *load group* is a group of loads (and their parameters) used together in a switch or timer assignment. A load group may consist of a single load, several loads, or all loads in the load list. Once created, you can set dimmer, ramp, and fade levels for each load group, as well as load preset or minimum turn on levels.

Module A *control module*, or *module*, is a switching or dimming device capable of handling up to eight loads, depending on the type. All loads controlled by the LiteTouch control system must be attached to an appropriate module.

LiteTouch manufactures a broad range of modules including:

- Eight-channel dimmer module (120, 240, 277 VAC)
- Quad dimmer module (120, 240 VAC)
- Fluorescent dimmer module (120, 240, 277 VAC)
- Eight-channel relay module (120. 240 VAC)
- Low voltage relay module
- DC motor control relay module
- Electronic (inverse phase) dimmer module (120. 240 VAC)
- Electronic ballast (0–10 VDC) dimmer module (120, 240, 277 VAC)
- Fan speed control module
- High power relay (120, 240, 277 VAC)

For detailed information on LiteTouch modules, refer to LiteTouch product data sheets, available upon request.

Data Input Modules

A *data input module* is a keypad bus module with switch inputs rather than loads that allow external signals to control LiteTouch loads. Typical signal sources include RF remotes, security systems, photo cells, and motion sensors. A data input module connects to a keypad line from the CCU for power and communication.

The inputs on a data input module function the same as the switches on a keypad. The inputs accept a contact closure from an external device that is wired to them. This contact closure is the same as a button press. If the contact for an input is closed and released, it is the same as a button press and release. If the contact is closed and remains closed for longer than four-tenths of a second, it is the same as a button press. When the contact is opened, it is the same as a button release.

LiteTouch manufactures two type of data input modules. Both modules have 8 (6 to 32 volt) DC inputs available.

- Momentary contact data input module
- Maintained contact data input module

LiteTouch Remote Control

A *LiteTouch Remote Control* contains five buttons used to control loads. Each button on the remote control activates an independent switch that can control any number of loads in the system. The LiteTouch Remote Control is available in black only. Up to ten remote controls may be used in a single project. LiteTouch Remote Controls communicate with the CCU via

an IR keypad or a LiteTouch Remote Control Receiver. You add a remote control just as you add a keypad (in the Stations view), and the buttons are programmed in the same manner as the switches on a keypad.

Power Supply A DC *power supply* is required for Standard and Compact central control units and is used to power all LiteTouch control devices. One power supply can power up to 35 keypads. A power supply must be within 50 feet of the central control unit.

Enclosure A rough-in *enclosure* is a surface or recess mounted box that houses the modules. Two sizes are available: four-module and two-module. Each enclosure comes with a hinged lid for easy access.

You need to determine early in the design process where enclosures will be located. You can best utilize the modules if all enclosures are placed in the same location. However, wiring can often be simplified by establishing two or more enclosure locations within the structure. You will need to consider both issues when placing enclosures.

Station/Keypad A *station* or *keypad* contains one or more switches to control loads. A gang is a single unit that may contain from one to nine buttons. Each button is an independent switch that can control any number of loads in the system. Multiple gangs may be connected together to form a keypad (up to eight). Keypads come in various designs and colors. Each button's function is printed on the button, and each button has an LED. When not in use, a button glows at 5% intensity; when in use, at 100% intensity.

SatiLite Keypad The SatiLite keypad is a simplified wall box dimmer keypad using the Metropolitan Series buttons. It is available in three models:

- Simple one-button dimmer that can be connected to the module bus
- Two-button unit with one simple dimmer switch and one fully programmable switch that can connect to both the module and keypad bus
- Three-way switch unit for use with the SatiLite Wall-Box Dimmer when additional points of control are required. It is used to replace the toggle switch in a three-way lighting installation and allow load control from a remote location.

Switch or Button A *switch* on a keypad may also be referred to as a *button*. Technically, the "button" is the object that is pressed, and the "switch" is the device activated when the button is pressed, but it is simpler to view the two terms as meaning the same thing. Switch and button are used interchangeably in LiteWare 3.8 and in this manual.

Master Keypad

A *master keypad* is capable of simulating up to 32 existing keypads, or it can be customized. A master keypad may be located anywhere in a home (e.g., master bedroom, exits, etc.). If control is based on existing keypads located throughout the home, each keypad is identified by name or location through the master menu. A master keypad is programmed using a control program uploaded to it via a serial port.

Central Control Unit

The *central control unit* (CCU) receives all keypad requests, interprets them, and then switches the specified loads. A system requires only one CCU. The CCU uses non-volatile memory to retain programming indefinitely. In addition, current system status is retained through power interruptions of up to three days.

The CCU employs an astronomical clock/calendar that can be used to turn system loads on or off. By using an astronomical clock, load schedules can be linked to sunrise and sunset and can adjust automatically to the seasons.

A CCU is programmed using a control program that is uploaded to the CCU via a serial or Ethernet port. Some models come equipped with a modem, which provides access via the telephone.

LiteWare versions 3.51 and later support the 5000LC, Standard, and Compact CCUs.

Timer

A *timer* can be used to turn loads on and off. Timers may be set by day, days of the week, days of the month, or days of the year and may be used for a wide variety of functions (e.g., sprinkling systems, night lighting, vacations, holiday lighting, etc.).

Astronomical Time

LiteTouch timers support *astronomical time*, making it possible to set up beginning and ending functions accurately based on sunrise and sunset.

System Event

A *system event* is the trigger or action that starts a “function” (see below). A system event may include any of the following:

- Pressing a button (switch press)
- Holding a button (switch hold)
- Releasing a button (switch release)
- Matching a timer's start time (timer begin)
- Matching a timer’s end time (timer end)
- Entering a combination code (user event)
- Starting or restarting the CCU (startup or initialization)

Function A *function* is a response to a system event. When an event occurs, such as pressing a button, the system responds by executing the specified function. There are several predefined functions (e.g., Dimmer function, Combination function, Momentary, Toggle (On) and (Off), etc.). On the 5000LC, a user function can be programmed for any response supported by the LiteTouch system.

Checklist of Design Steps

When designing a new lighting control system using LiteWare 3.8, you will normally take the following steps:

- ❒ Install LiteWare 3.8. Refer to Chapter 2, “Installation” on page 7.
- ❒ Review the Getting Started chapter to get acquainted with LiteWare 3.8’s layout and features. Refer to Chapter 3, “Getting Started” on page 13.
- ❒ Create a new job. Refer to “Add a New Database” on page 31 and “Add a Job to a Database” on page 40.
- ❒ Use the “Defaults” option to add keypad/button and load group defaults for the job. Refer to “Set Up Job Defaults” on page 27.
- ❒ Use the Job Parameters view to specify the locations of the module enclosures, the location of the CCU (which must be within 50 feet of an enclosure location), and other system parameters. Refer to Chapter 5, “Job Parameters” on page 43.
- ❒ Create a fixture list. Refer to Chapter 6, “Fixtures” on page 59.
- ❒ Create a load list. Review the load list for errors before proceeding. Refer to Chapter 7, “Loads” on page 63.
- ❒ Assign the loads to modules. You can have LiteWare assign the loads automatically and then manually add any modules or assignments that LiteWare could not identify. Loads are assigned by location. Review the load list for errors before proceeding. Refer to Chapter 8, “Enclosures” on page 71.

- ❒ Create a bill of materials, which covers enclosures, modules, power supply, CCU, and so on. Refer to Chapter 11, “Billing” on page 173.
- ❒ Modify the design as needed.
- ❒ During the finishing phase of the project, determine the keypads needed for each location in the home. Enter the description for the button engraving so the keypads can be ordered. Refer to Chapter 9, “Stations” on page 93.
- ❒ Print and review the keypad design schedule carefully. Refer to “Print a Station Design Schedule” on page 150.
- ❒ Regenerate (or complete) the bill of materials. Refer to Chapter 11, “Billing” on page 173.
- ❒ Assign the appropriate loads and make the applicable settings for each button on each keypad. Refer to Chapter 9, “Stations” on page 93.
- ❒ Add any timers required for the job, and assign the appropriate load group to each timer. Refer to Chapter 10, “Timers” on page 153.
- ❒ Export the program file for the job to the LiteTouch system. Refer to Chapter 14, “Import/Export” on page 219.

Installation 2

This chapter provides information on installing LiteTouch's LiteWare 3.8 design software.

NOTE ☞ LiteTouch is always working to improve the LiteWare 3.8 design software. Be sure to check the LiteTouch Web site at www.litetouch.com periodically for new releases of LiteWare.

System Requirements

LiteWare 3.8 is designed to operate with the following minimum computer requirements:

Processor: Pentium or better processor, 133 MHz or faster

Memory: 64 MB or more RAM

Hard Disk: 20 MB hard disk space available

Video: 800 x 600 or higher SVGA resolution

Operating System: Microsoft® Windows® 98, Windows Millennium Edition, Windows NT®, Windows 2000®, or Windows XP

Install LiteWare 3.8

LiteWare3.8 can be obtained from LiteTouch on CD or downloaded from their Web Site at *www.litetouch.com*. If you are installing LiteWare software for the first time, refer to “LiteWare 3.8 Full Build” on page 8. If you

already have a version of LiteWare 3.x on your computer, you can install the patch (see "LiteWare 3.8 Patch Build" on page 12).

LiteWare 3.8 Full Build

If you are installing LiteWare for the first time, or if you have a version of LiteWare older than 3.x on your computer, you need to install the "LiteWare 3.8 Full Build."

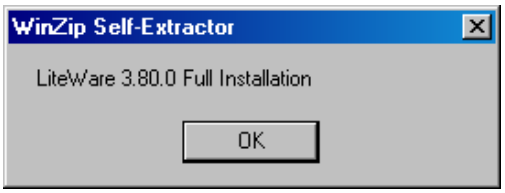
NOTE ☞ If you have a LiteWare3.x version on your computer, you can install LiteWare 3.8 more quickly from the "LiteWare 3.8 Patch Build" rather than the full build. However, it will not harm your existing files if you do install the full build; your existing Projects folder will not be changed, and the full build installation will perform any system clean-up that is required for the new version.

Do the following to install the full version of LiteWare 3.8 on your computer:

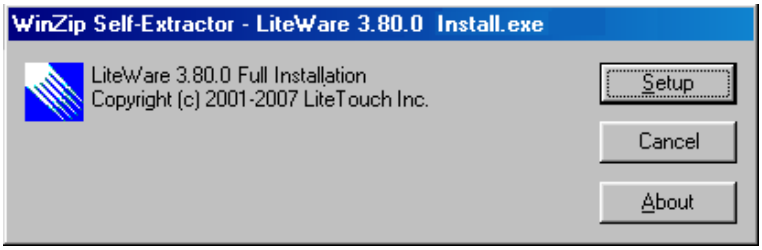
1. Close all Windows applications before starting installation.

2. Insert the LiteTouch CD in your CD-ROM drive or locate the installation file you downloaded from the LiteTouch Web site.

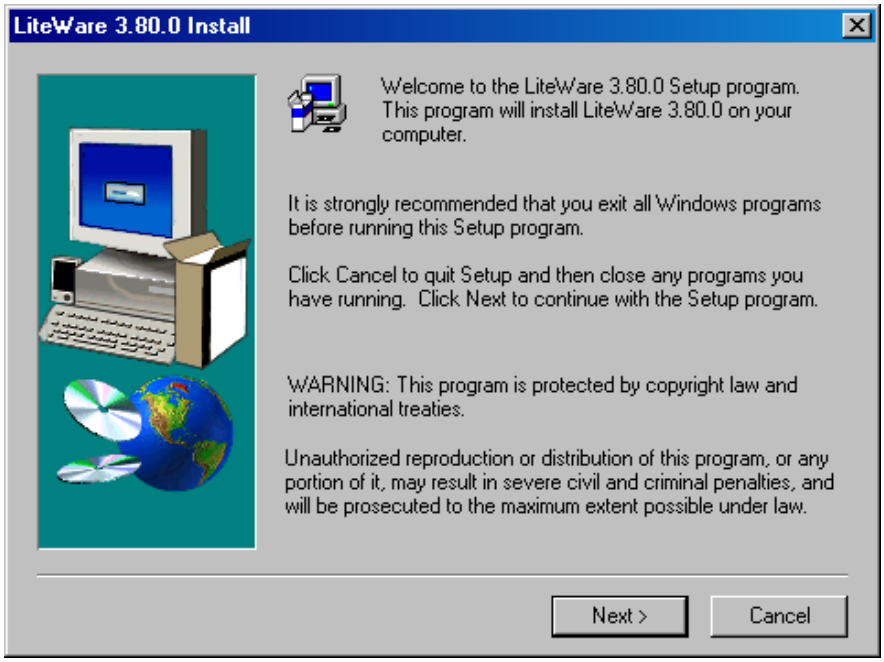
3. Go to your CD-ROM drive or the folder to which you downloaded the application, and double-click the file name, **LiteWare 3.8 Full Build.exe**, which is a zipped installation file. The following prompt is displayed.



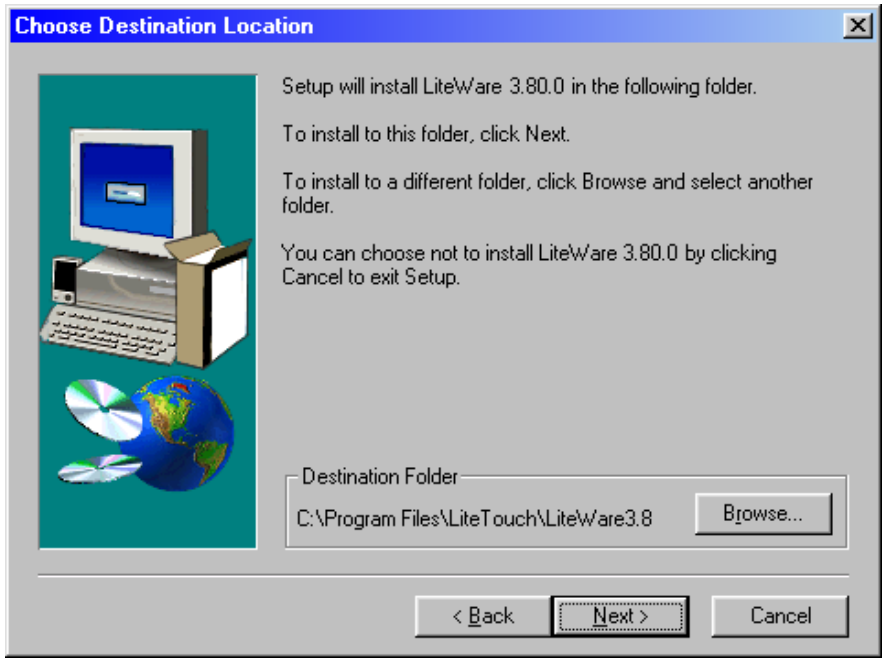
4. Click [**Yes**], and the following prompt is displayed.



5. Click [**Setup**] to continue, and the files in the installation zipped file are decompressed and installed in a temporary directory on your hard drive. Then the following window is displayed.


LiteWare 3.80.0 Install
Welcome to the LiteWare 3.80.0 Setup program. This program will install LiteWare 3.80.0 on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

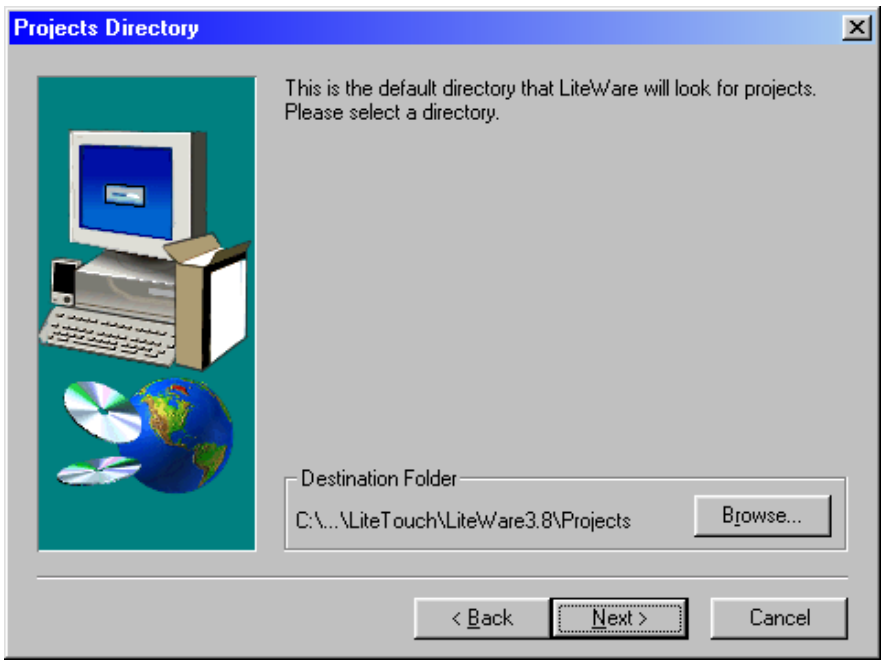
6. Click [**Next**] to continue, and the following window is displayed.


Choose Destination Location
Setup will install LiteWare 3.80.0 in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install LiteWare 3.80.0 by clicking Cancel to exit Setup.
Destination Folder
C:\Program Files\LiteTouch\LiteWare3.8
Browse...
< Back
Next >
Cancel

The folder to which the LiteWare 3.8 program will be copied is shown.

7. To accept the default, click **[Next]**. To install LiteWare 3.8 in a different folder, click **[Browse]**, and select or create a different folder, then click **[Next]** to proceed.

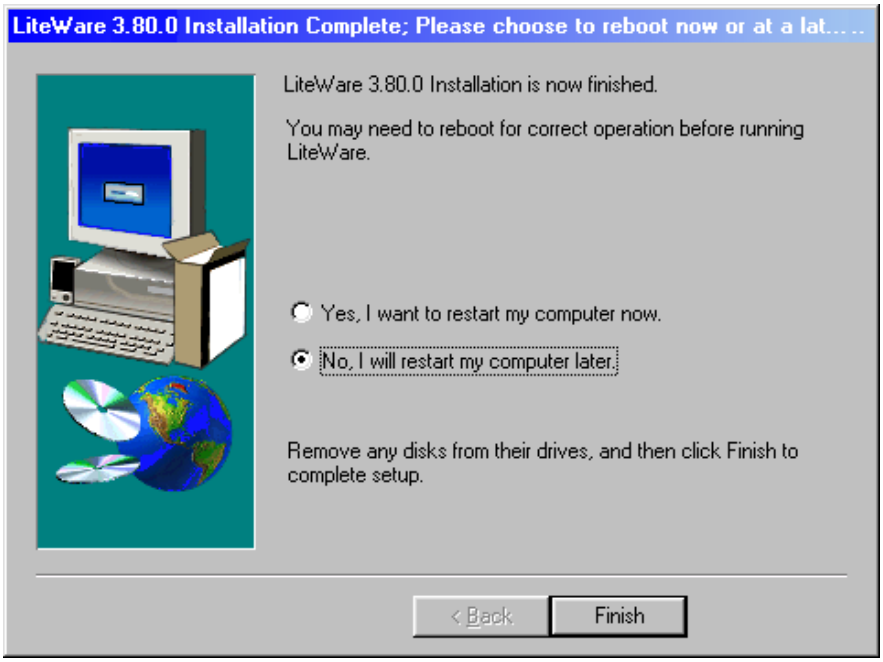
   The following window is displayed.



8. The "Projects" folder is the folder in which project database files are saved, as well as the default folder opened when you select the "New," "Open," and "Save" options. To accept the default folder name and path shown in this window as your Projects folder, click **[Next]**.

   To use a different folder, click **[Browse]**, select or create a different folder, then click **[Next]** to proceed.

The files are copied to your hard disk, then the following window appears.


LiteWare 3.80.0 Installation Complete; Please choose to reboot now or at a lat...
LiteWare 3.80.0 Installation is now finished.
You may need to reboot for correct operation before running LiteWare.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

9. You need to restart your computer before running LiteWare 3.8 . Select **Yes, I want to restart my computer now** to restart your computer.

   If you select **No, I will restart my computer later**, remember to restart your computer before you run LiteWare 3.8 .

10. Click **[Finish]** to complete the installation process. If you selected **Yes, I want to restart my computer now**, your computer will restart automatically.

    If you selected **No, I will restart my computer later**, you are returned to the CD menu. Click **[Exit]** to exit the CD.

After your computer is restarted, you can start the LiteWare3.8 application. If you have used LiteWare 3.x before, refer to “What’s New” on page i for information on what has changed in LiteWare 3.8 . Refer to Chapter 3, “Getting Started” on page 13 for general information on LiteWare3.8.

LiteWare 3.8 Patch Build

If you have a LiteWare3.x version on your computer, you can install LiteWare 3.8 using the "LiteWare 3.8 Patch Build" rather than the full build. Your existing Projects folder will not be changed, and the installation will perform any system clean-up that is required for the new version.

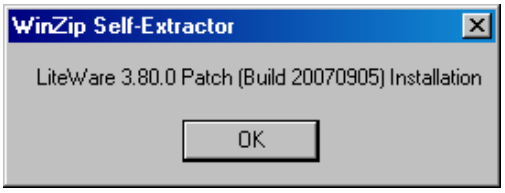
If you are installing LiteWare for the first time, or if you have a version of LiteWare older than 3.x on your computer, you need to install the "LiteWare 3.8 Full Build" (refer to page 8).

Do the following to install the upgrade version of LiteWare 3.8 on your computer:

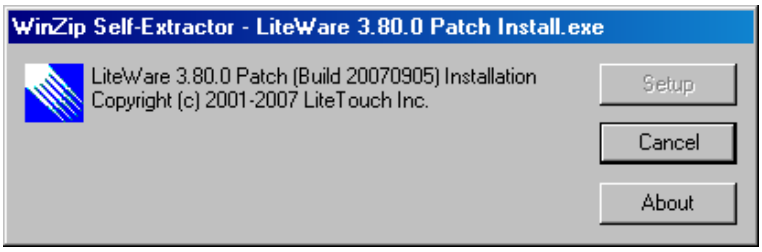
1. Close all Windows applications before starting installation.

2. Insert the LiteTouch CD in your CD-ROM drive or locate the installation file you downloaded from the LiteTouch Web site.

3. Go to your CD-ROM drive or the folder to which you downloaded the application, and double-click the file name, **LiteWare 3.8 Patch Build.exe**, which is a zipped installation file. The following prompt is displayed.



4. Click [**OK**], and the following prompt is displayed.



5. Click [**Setup**] to continue, and the files in the installation zipped file are decompressed and installed in the LiteWare folder.

You can start LiteWare 3.8 without restarting your computer. Refer to the "What's New" section at the beginning of this manual for information on the changes in LiteWare version 3.8 .

Getting Started 3

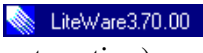
The LiteWare 3.8 software package is provided to designers of LiteTouch systems to aid with the design, ordering, and programming of lighting control systems. LiteWare 3.8 simplifies the designing and programming of control systems and is used to do the following:

- Design the basic lighting control system step-by-step.
- Generate a bill of materials of LiteTouch components.
- Assign loads and a function to each switch on each keypad.
- Add timers and assign loads and functions to them.
- Add vacation settings and a startup event.
- Create user programs for functions and system events as required.
- Generate and upload the file used to operate the control system.

Using LiteWare 3.8 you can control how a switch functions by adding or editing the switch's programming. To make this easier, LiteWare 3.8 integrates programming into the design software, making it possible to review and edit programming at the dialog box for each switch or event. Instructions for programming a switch function are provided in this manual.

When the project is finished, the lighting design that you have created and programmed is used to compile and upload the programming code to the central control unit. The control system design can be edited (and the programming code regenerated) as required.

Start/Exit LiteWare 3.8

To start LiteWare 3.8, click the Windows [**Start**] button, select **Programs** select **LiteTouch**, then click 

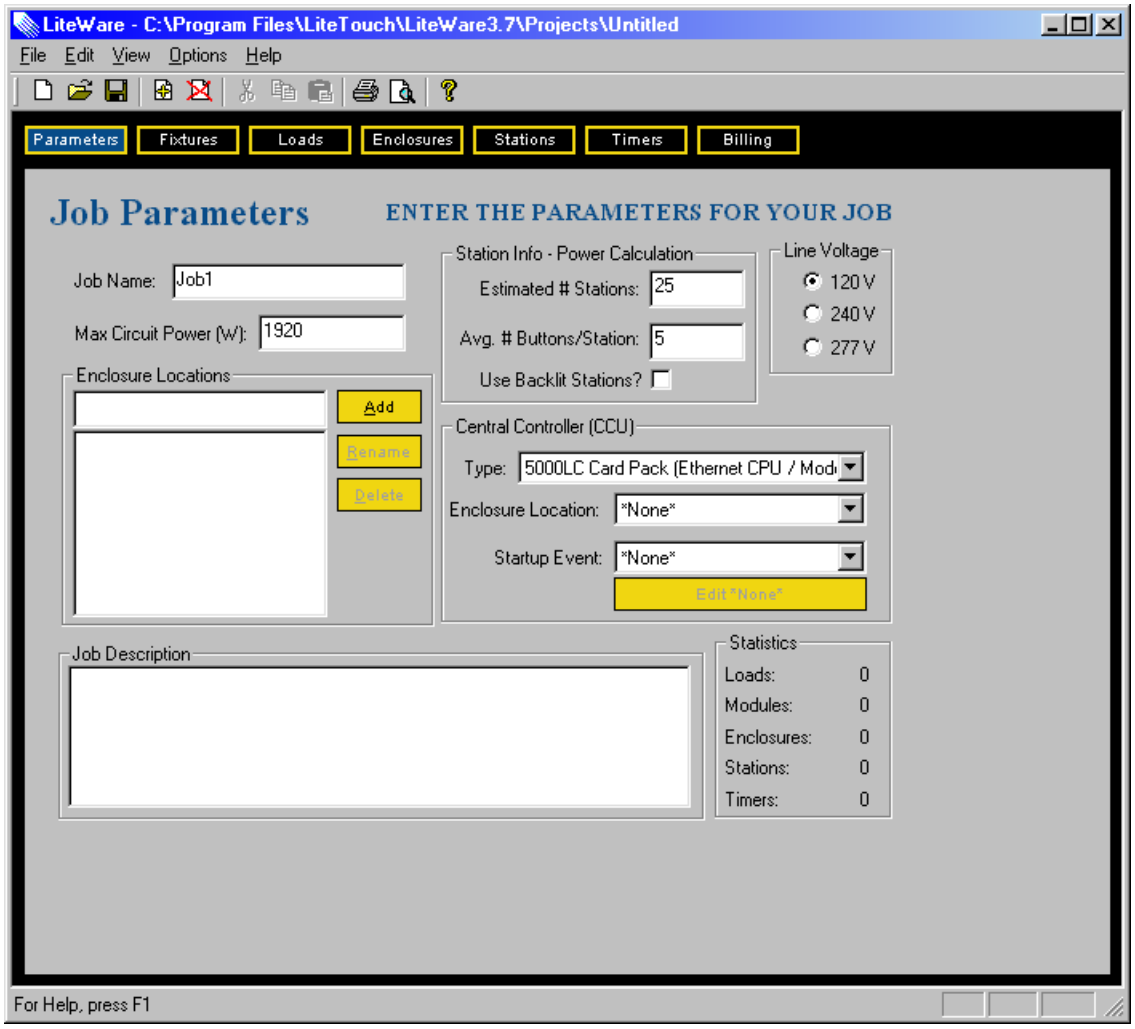
(LiteWare3.80.00). The main window is displayed (see next section).

Exit LiteWare 3.8 To exit LiteWare 3.8, pull down the File menu and click **Exit**, or click the close button ([X]) in the top, right corner of the main window.

Main Window

At the LiteWare 3.8 main window, you select the "view" applicable to each phase of your design project. You perform all design and program functions in the various views. Each view contains the fields and data required to complete that part of the lighting control system design. Views include Job Parameters, Fixtures, Loads, Enclosures, Stations, Timers, and Billing.

The Job Parameters view (with all main window panes closed) is shown below.



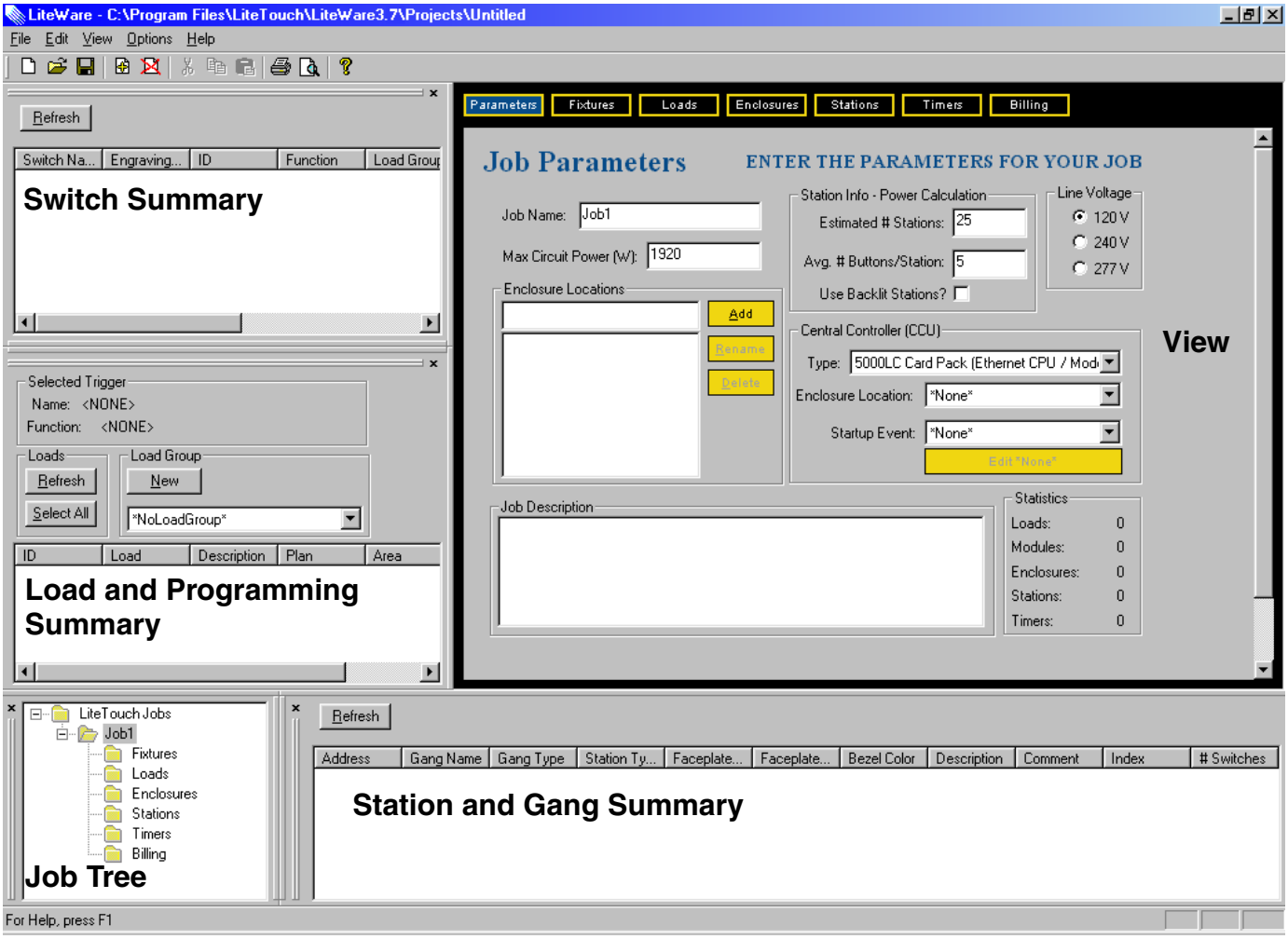
NOTE ☞ If the main window is not maximized, use the scroll bars on the right and bottom to see the parts of the view that are not visible. Click the minimize/maximize button in the upper right corner to maximize the window (expand it to fill the screen), or resize the main window as described in "Move and Resize Window Panes" on page 19.

The Job Parameters view is selected when you start LiteWare 3.8. To change to a different view, click the view name on the view selection bar.

You can customize the main window using the options on the View menu. Use these options to show or hide any of the following LiteWare toolbars or panes:

- Toolbar (see "Toolbar" on page 25)
- Status Bar (see "Status Bar" on page 26)
- Job Tree (see "Job Tree" on page 16)
- Switch Summary (see "Switch Summary" on page 17)
- Station and Gang Summary (see "Station and Gang Summary" on page 19)
- Load and Programming Summary (see "Load and Programming Summary" on page 18)

The main window with all available panes and toolbars displayed is shown below.

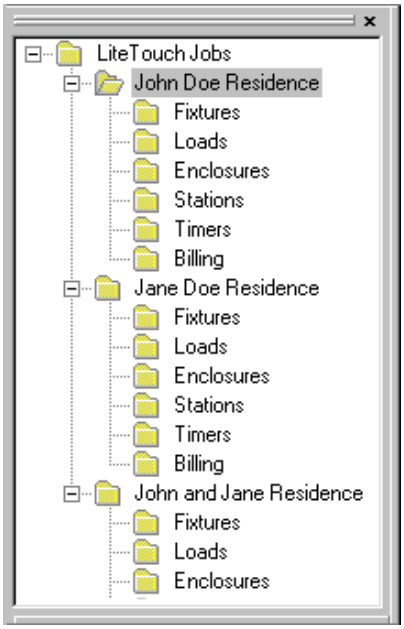


Panes can be docked to the main window either horizontally or vertically or they can be displayed as a separate window. For details on customizing your display, refer to “Move and Resize Window Panes” on page 19.

Job Tree

You need to display the Job Tree if you are working with a project database that contains more than one job. In multi-job databases, you use the Job Tree to select the job with which you want to work. In the example below, the project database file contains three jobs.

To show or hide the Job Tree, pull down the View menu and click **Job Tree**.



Click a job name to select the job. Click [+] next to a job name to expand the tree for the job. Click a view name beneath the job to go to that view. If a project database has only one job, the Job Tree is not needed.

Switch Summary

The Switch Summary lists all keypad switches for the currently selected job. Switches are grouped by keypad. The Switch Summary can be displayed all of the time but is most appropriate in the Stations view.

Switch Summary

Refresh

Switch Name	Engraving Text	ID	Function	Load Group	Comment	Button Color	Fill Color	LED Color
S1:G12:B2		12-2	*None*	*NoLoadGroup*		White	Black	Green
S1:G12:B8		12-8	*None*	*NoLoadGroup*		White	Black	Green
ST1:G06:B1	Overhead	06-1	On	L104		Black	White	Green
ST1:G06:B2	Fan	06-2	On	*NoLoadGroup*		Black	White	Green
ST1:G06:B3	Pictures	06-3	Scene	L103		Black	White	Green
ST1:G06:B4	Reading Lights	06-4	Dimmer	L104		Black	White	Green
ST1:G06:B5	Back-Iground	06-5	Scene	L103		Black	White	Green
ST1:G06:B6	Desk	06-6	Dimmer	NewLoadGroup		Black	White	Green
ST1:G06:B7	Balcony	06-7	On	NewLoadGroup2		Black	White	Green
ST1:G06:B8	Hallway	06-8	On	L103		Black	White	Green
ST1:G06:B9	User 2	06-9	Combination	*NoLoadGroup*		Black	White	Green
ST2:G02:B1	B1	02-1	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B3	B2	02-3	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B4	B3	02-4	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B5	B4	02-5	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B6	B5	02-6	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B7	B6	02-7	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B9	B7	02-9	*None*	*NoLoadGroup*		Black	White	Green
ST3:G08:B2		08-2	*None*	*NoLoadGroup*		White	Black	Green
ST3:G08:B8		08-8	*None*	*NoLoadGroup*		White	Black	Green

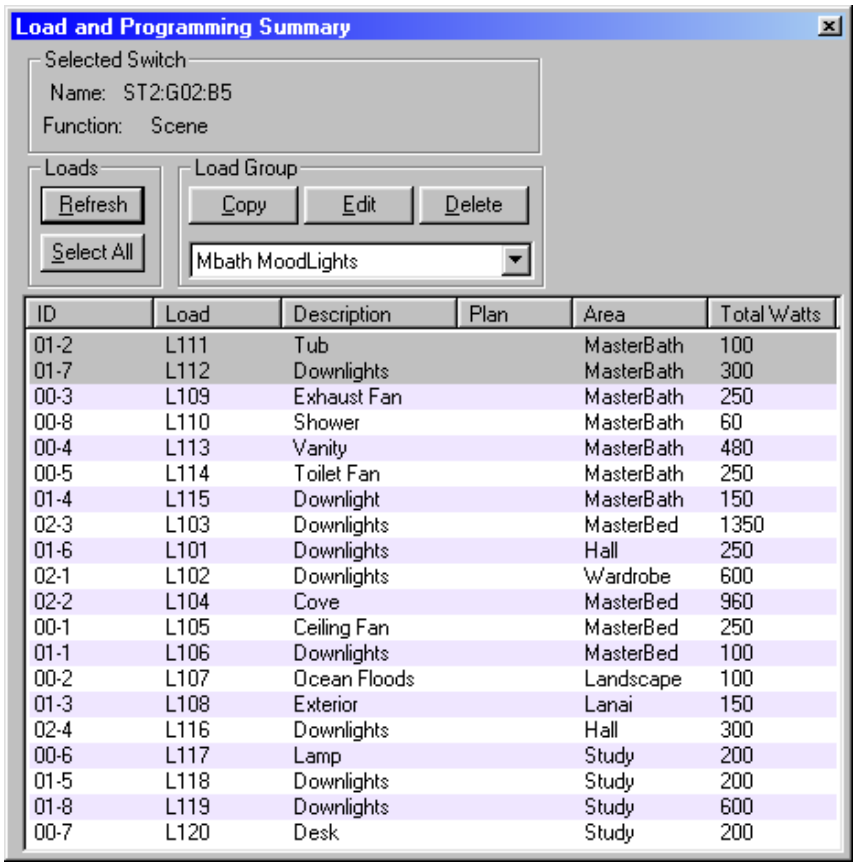
Refer to “Switch Summary” on page 142 for more information.

Load and Programming Summary

You use the Load and Programming Summary to add and maintain load groups and to assign loads or load groups to a switch on a keypad or to a timer.

In the example below, the Load and Programming Summary displays the loads controlled by the switch identified as “ST2:GO2:B5.”

To show or hide the Load and Programming Summary, pull down the View menu and click **Load and Programming Summary**.



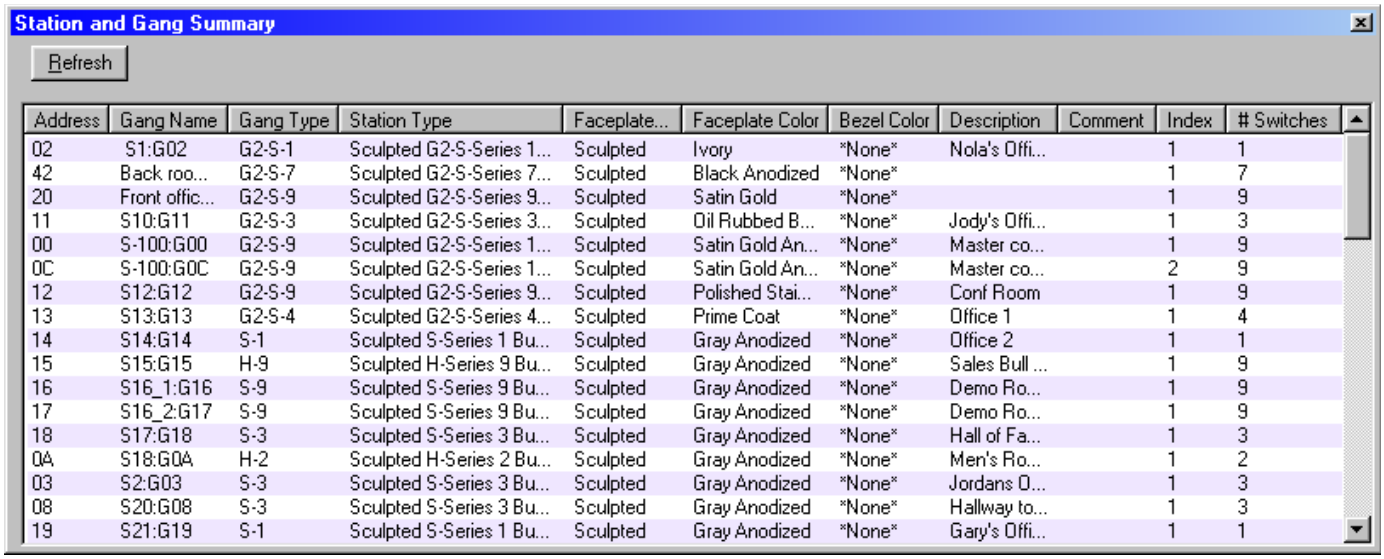
ID	Load	Description	Plan	Area	Total Watts
01-2	L111	Tub		MasterBath	100
01-7	L112	Downlights		MasterBath	300
00-3	L109	Exhaust Fan		MasterBath	250
00-8	L110	Shower		MasterBath	60
00-4	L113	Vanity		MasterBath	480
00-5	L114	Toilet Fan		MasterBath	250
01-4	L115	Downlight		MasterBath	150
02-3	L103	Downlights		MasterBed	1350
01-6	L101	Downlights		Hall	250
02-1	L102	Downlights		Wardrobe	600
02-2	L104	Cove		MasterBed	960
00-1	L105	Ceiling Fan		MasterBed	250
01-1	L106	Downlights		MasterBed	100
00-2	L107	Ocean Floods		Landscape	100
01-3	L108	Exterior		Lanai	150
02-4	L116	Downlights		Hall	300
00-6	L117	Lamp		Study	200
01-5	L118	Downlights		Study	200
01-8	L119	Downlights		Study	600
00-7	L120	Desk		Study	200

When you select a switch or timer in the Stations view, the loads assigned to the switch or timer are moved to the top of the list and highlighted. Refer to “Load and Programming Summary” on page 143 for more information.

When you are not working with keypads or timers, you do not need to display the Load and Programming Summary.

Station and Gang Summary

The Station and Gang Summary lists information about each keypad, including gang data, keypad type, and face-plate style and color for the currently selected job. For keypads that have multiple gangs, a separate line is added to the summary to describe each gang. In the Station view, select a keypad or gang in the Station and Gang Summary pane, and the selected keypad is outlined in the Station view. Or select a keypad or gang in the Station view to highlight it in the Station and Gang Summary.



Address	Gang Name	Gang Type	Station Type	Faceplate...	Faceplate Color	Bezel Color	Description	Comment	Index	# Switches
02	S1:G02	G2-S-1	Sculpted G2-S-Series 1...	Sculpted	Ivory	*None*	Nola's Offi...		1	1
42	Back roo...	G2-S-7	Sculpted G2-S-Series 7...	Sculpted	Black Anodized	*None*			1	7
20	Front offic...	G2-S-9	Sculpted G2-S-Series 9...	Sculpted	Satin Gold	*None*			1	9
11	S10:G11	G2-S-3	Sculpted G2-S-Series 3...	Sculpted	Oil Rubbed B...	*None*	Jody's Offi...		1	3
00	S-100:G00	G2-S-9	Sculpted G2-S-Series 1...	Sculpted	Satin Gold An...	*None*	Master co...		1	9
0C	S-100:G0C	G2-S-9	Sculpted G2-S-Series 1...	Sculpted	Satin Gold An...	*None*	Master co...		2	9
12	S12:G12	G2-S-9	Sculpted G2-S-Series 9...	Sculpted	Polished Stai...	*None*	Conf Room		1	9
13	S13:G13	G2-S-4	Sculpted G2-S-Series 4...	Sculpted	Prime Coat	*None*	Office 1		1	4
14	S14:G14	S-1	Sculpted S-Series 1 Bu...	Sculpted	Gray Anodized	*None*	Office 2		1	1
15	S15:G15	H-9	Sculpted H-Series 9 Bu...	Sculpted	Gray Anodized	*None*	Sales Bull ...		1	9
16	S16_1:G16	S-9	Sculpted S-Series 9 Bu...	Sculpted	Gray Anodized	*None*	Demo Ro...		1	9
17	S16_2:G17	S-9	Sculpted S-Series 9 Bu...	Sculpted	Gray Anodized	*None*	Demo Ro...		1	9
18	S17:G18	S-3	Sculpted S-Series 3 Bu...	Sculpted	Gray Anodized	*None*	Hall of Fa...		1	3
0A	S18:G0A	H-2	Sculpted H-Series 2 Bu...	Sculpted	Gray Anodized	*None*	Men's Ro...		1	2
03	S2:G03	S-3	Sculpted S-Series 3 Bu...	Sculpted	Gray Anodized	*None*	Jordans O...		1	3
08	S20:G08	S-3	Sculpted S-Series 3 Bu...	Sculpted	Gray Anodized	*None*	Hallway to...		1	3
19	S21:G19	S-1	Sculpted S-Series 1 Bu...	Sculpted	Gray Anodized	*None*	Gary's Offi...		1	1

Refer to “Station and Gang Summary” on page 149 for more information.

Move and Resize Window Panes

The Job Tree, Switch Summary, Load and Programming Summary, and Station and Gang Summary window panes can be resized and/or moved to any location in the main window.

Each window “pane” has a “docking bar” at the top when the pane is docked, or in a fixed position, in the window.

To move the pane, click the docking bar, hold down the mouse button, and drag the pane to another location in the window. As you drag it, you will see an outline that indicates the position and size it will be. When it is in the position you want, release the mouse button. If you move a pane to a floating, or undocked, position, the docking bar changes to a title bar. To move a floating pane, click the title bar, hold down the mouse button, and drag the pane. When you move it into a docked position, the docking bar appears again.

NOTE ☞ If you do not want the pane to "snap" into a docked position, hold down the <Ctrl> key as you drag it. It then becomes a floating pane that can be positioned anywhere on the screen.

Docked positions are on either side and at the top and bottom of the main window. If all panes are open, they can be positioned one on top of the other on either side, side by side on either side, one on each side of the window, one at the top and one at the bottom of the window, or side by side at the top or bottom of the window. If positioned at the top or bottom of the window, the docking bar appears on the left side of the pane.

To resize a window pane, move the mouse pointer over any side or corner until the pointer changes to directional arrows. Click and hold the mouse button, and drag the side or corner of the pane until it is the size you want, then release the mouse button.

NOTE ☞ You can resize the main window using the same method.

To close a window pane, click the [x] on the docking bar or title bar. To show the pane again, select it from the View menu.

Menu Bar

The menus at the top of the main window contain options used to perform database, job related, and editing functions, select features available on the main window, and access online Help. Click a menu name and the menu drops down from the menu bar. Click an option on the menu to select the function. You can also select an option by typing the underlined letter in the option name, if available.

File

Following are the options available on the File menu:

New Create a new LiteWare 3.8 project database file. Each database file may contain one or more "jobs." Refer to "Add a New Database" on page 31 for more information.

Open Open an existing LiteWare 3.8 project database file, or import a file from a previous LiteWare version. Refer to "Open a Database" on page 33 for more information.

Save Save the current project database file. Refer to "Save a Database" on page 38 for more information.

Save As Save the current project database file to a different name or in a different folder. You can use this function to back up the project database file. Refer to "Save a Database" on page 38 for more information.

Import The following Import options are available:

Import Billing
Import a billing file into LiteWare 3.8 that was exported from third-party software (e.g., your company's software or a spreadsheet program). The file must be in a comma-delimited text format (*.txt*).

Import Fixtures
Import a fixture list (*.fix* extension) into LiteWare 3.8 that was exported from another LiteWare project database file .

Import LWJ File
Import an *.lwj* file into LiteWare 3.8. *.lwj* files are used in LiteWare 2.XX.

Import 5000LC Program File
Import a program file downloaded from a 5000LC CCU into LiteWare 3.8 and convert it to a job, which is added to the current project database file. You use the To/From CCU function to receive a program file from the CCU. Refer to "Import 5000LC Program File" on page 223 for more information.

Import Standard/Compact Program File
Import a program file for a Standard or Compact CCU into LiteWare 3.8. The program definitions can be taken from the program file (*.def* or *.cdf*), also called a definition file, or collectively from the other files associated with the job. The data is imported into the currently opened project database file as a new job. You use the To/From CCU function to receive a program file from the CCU. Refer to "Import Standard or Compact Program File" on page 224 for more information.

Import LW3.0 MDB
Import a project database file created in a previous version of LiteWare (3.0 – 3.07) into LiteWare 3.8. The *.mdb* file is converted to a new database file with an *.lwd* extension. The original *.mdb* file is retained unchanged so you can load it into an earlier version of LiteWare or use it as a backup that will load into either version of LiteWare. (LiteWare3.08 and later files have the *.lwd* extension and can be opened in LiteWare 3.8 without importing.)

Import Loads
Import a loads list (*.lod* extension) into LiteWare 3.8 that was exported from another LiteWare project database file .

Export The following Export options are available:

Export Billing
Create a billing file that can be imported into a third-party software application (e.g., your company's software or a spreadsheet program).

Export Fixtures
Create a fixture list that can be imported into another LiteWare 3.8 project database file.

Export Program File
Create a program file for the currently selected job. A program file is used by a LiteTouch CCU. After you create a program file, you use the To/From CCU function to send the program file to the CCU. Refer to "Export Program File" on page 230 for more information.

Export MCS File
Create a file for the master keypad or master control station (MCS). A master keypad is programmed using a control program uploaded to it via a serial port. After you create a master keypad file, you use the *mcs.exe* utility to upload the file to the master keypad. Refer to "Export MCS File" on page 232 for more information.

Export Loads
Create a loads list that can be imported into another LiteWare 3.8 project database file.

To/From CCU Open the Communications dialog box that is used to upload a program file to the CCU, download a program file from the CCU, set the time and date in the CCU, or perform diagnostics on the Compact or 5000LC CCUs. Refer to "To/From CCU" on page 236 for information.

Print Print information from the currently selected view (Job Parameters, Fixtures, Loads, Enclosures, etc.). A standard Windows Print dialog box is displayed. From this dialog box, you can select a printer, set printer properties, specify a print range, and select the number of copies to print. You also have the option to print the report to a file. You can use the **Print Preview** option (see below) to view the data before printing it.

Print Preview View a report on-screen or preview a report before printing it. **[Next Page]** and **[Previous Page]** buttons are provided to move through a multi-page report. A **[Two Page]** button is available to display two pages at a time. For

on-screen viewing, there are three levels of magnification available using the **[Zoom In]** and **[Zoom Out]** buttons. (*The **[Two Page]** and **[Zoom]** buttons are not yet fully implemented.*) To print the report from the Print Preview window, click **[Print]**.

Print Setup Set up the printer before printing a report. A standard Windows Print Setup dialog box is displayed. From this dialog box, you can select a printer, set printer properties, select a different paper size or paper source, and specify the paper orientation (landscape or portrait).

Last Loaded Files The names of the last project database files loaded (up to nine) are listed at the bottom of the menu. To open one of these files, click it.

Exit Exit LiteWare 3.8.

Edit

Following are the options available on the Edit menu:

Undo Reverse, or undo, the last action. Specifically, Undo reverses actions such as the deletion of keypads, modules, etc. (*This function is not yet implemented.*)

Cut/Copy/Paste Move keypads, modules, enclosures, loads, etc. from one job to another. *(These functions are not yet implemented.*)

Add Job Add a job to the current project database file. Refer to “Add a Job to a Database” on page 40 for more information. You can rename a job in the Job Parameters view.

Delete Job Delete the currently displayed (or selected) job from the database file. A message confirms the action. Refer to “Delete a Job from a Database” on page 40 for more information.

View

Following are the options available on the View menu:

Toolbar Show or hide the toolbar. Refer to “Toolbar” on page 25 for information on the toolbar functions.

Status Bar Show or hide the status bar. Refer to “Status Bar” on page 26 for information on status bar functions.

Job Tree Show or hide the Job Tree. Refer to “Job Tree” on page 16 for information on the Job Tree.

Switch Summary Show or hide the Switch Summary. Refer to "Switch Summary" on page 17 for information.

Station and Gang Summary Show or hide the Station and Gang Summary. Refer to "Station and Gang Summary" on page 19 for information.

Load and Programming Summary Show or hide the Load and Programming Summary. Refer to "Load and Programming Summary" on page 18 for information.

Options

Following are the options available on the Options menu:

Defaults Add keypad/button and load group defaults for the current job or all jobs.

Load Level Adjustment

(Optional) If you have installed the LiteTouch Load Level Adjustment Tool plug-in, this menu appears on the LiteWare menu bar. Refer to Chapter A, "Load Level Adjustment" on page 257 for information.

Open Load Level Adjustment Open the LiteTouch Load Level Adjustment Tool plug-in.

Help

Following are the options available on the Help menu:

Help Topics View the Help "Contents" and access online Help messages. You can also press <F1> at any dialog box or window to view online Help contents.

LiteTouch on the Web Select one of the options to open your Web browser and go directly to the Litetouch Web site, as follows:

LiteTouch Website
Go to the main LiteTouch Web site.

LiteWare Updates
Go directly to the Web page to download the latest update to LiteWare.

LiteTouch Support
Go directly to the LiteTouch Support Web page.

About LiteWare Display the LiteWare version and other information.

Toolbar

The toolbar contains buttons, or tools, to select commonly used LiteWare 3.8 functions. To show or hide the toolbar, pull down the View menu and click **Toolbar**.

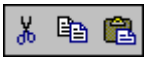
Click to create a new LiteWare 3.8 project database file. Each database file may contain one or more "jobs." Refer to "Add a New Database" on page 31 for more information.

Click to open an existing LiteWare 3.8 project database file. Refer to "Open a Database" on page 33 for more information.

Click to save the current database file. Refer to "Save a Database" on page 38 for more information.

Click to add a job to the current project database file. Refer to "Add a Job to a Database" on page 40 for more information. You can rename a job in the Job Parameters view.

Click to delete the currently displayed (or selected) job from the database file. A message confirms your intent. Refer to "Delete a Job from a Database" on page 40 for more information.



Click to move fixtures, keypads, modules, enclosures, loads, etc. from one job to another. (*These functions are not yet implemented.*)

Click to print information from the currently selected view (Job Parameters, Fixtures, Loads, Enclosures, etc.). A standard Windows Print dialog box is displayed. From this dialog box, you can select a printer, set printer properties, specify a print range, and select the number of copies you want to print. You also have the option to print the report to a file. You can use the **Print Preview** tool (see below) to view the data before printing it.

Click to view a report on-screen or to preview a report before printing it. **[Next Page]** and **[Previous Page]** buttons are provided to move through a multi-page report. A **[Two Page]** button is available to display two pages at a time. For on-screen viewing, there are three levels of magnification available using the **[Zoom In]** and **[Zoom Out]** buttons. (*The **[Two Page]** and **[Zoom]** buttons are not yet fully implemented.*) To print the report from the Print Preview window, click **[Print]**.

Click to display the LiteWare 3.8 version and other information.

Status Bar

The status bar at the bottom of the main window displays Help messages for menu options and toolbar buttons. Move the mouse pointer over a toolbar button or a menu option, and a description of the function is shown on the status bar. To show or hide the status bar, pull down the View menu and click **Status Bar**.

Using the Mouse and Keyboard

Move the mouse pointer over an item and click the left mouse button to do any of the following:

- Open a menu or folder
- Select an option from a menu
- Select a button or tool
- Select an item in a list
- Move the cursor to a cell in a table

In most cases, you can double-click an item in a list to select it. Double-clicking is the same as selecting an item and clicking [**OK**].

You can use your mouse scroll wheel in the Station, Enclosure, and Timer views.

You can also use the following keyboard "shortcuts:"

- To open a menu, press and hold **<Alt>** and type the underlined letter in the menu name.
- To select a function from a menu, type the underlined letter.
- Within a view or dialog box, move from field to field (or cell to cell in a table) by pressing **<Tab>**. Press **<Shift><Tab>** (press and hold **<Shift>** while pressing **<Tab>**) to move backwards.

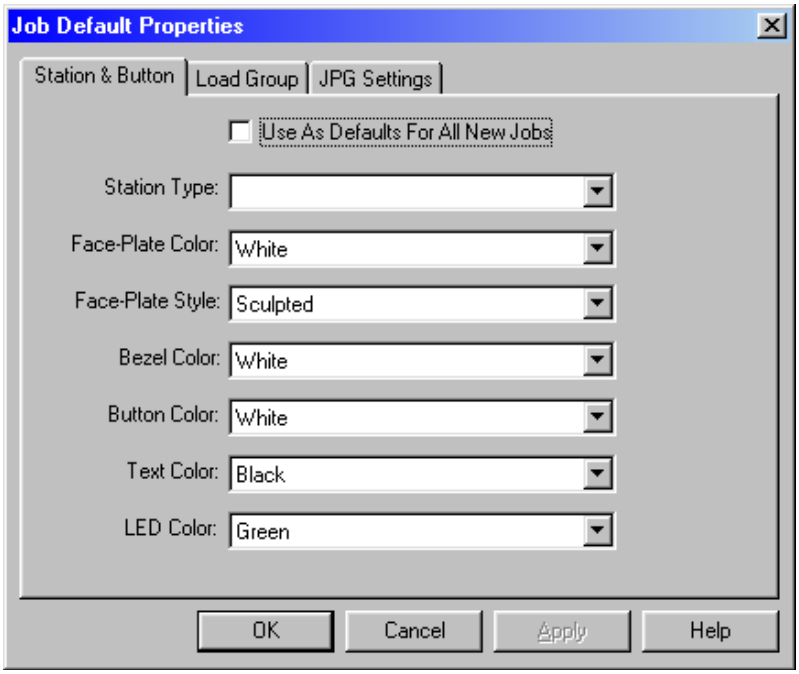
Set Up Job Defaults

You can set up keypad/button and load group defaults for the current job or for all jobs in the current database file. Your defaults should represent the most likely configuration for new keypads and load groups. Then, when you create a new keypad or load group, you will only need to make entries to fields that are different from the defaults. You can set up defaults from any view. To set job default properties, pull down the Options menu, and select **Defaults**.

NOTE ☞ You can also set some keypad/button defaults for the current job by clicking the [**Set Defaults**] button in the Stations view (see "Set Defaults" on page 98). However, you can only set up defaults for all jobs in the database using this option. Load group defaults can only be set using this option and apply to all new load groups and to all loads added to existing load groups.

Station & Button Tab

If it is not already selected, click the **Station & Button** tab to set defaults for keypad type and colors.



Use As Defaults for All New Jobs Select this option to apply the defaults to all new jobs in the database. If not selected, the defaults will apply only to the current job.

Station Type Click ▼ and select the keypad type for which you want to set defaults from the drop-down list. All keypads available in LiteWare 3.8 are listed (stock items).

Face-Plate Color Click ▼ and select a default color for the keypad's face-plate.

Face-Plate Style Click ▼ and select a default style for the keypad's face-plate.

Bezel Color Click ▼ and select a default color for the keypad's bezel, if applicable.

Button Color Click ▼ and select a default color for the buttons.

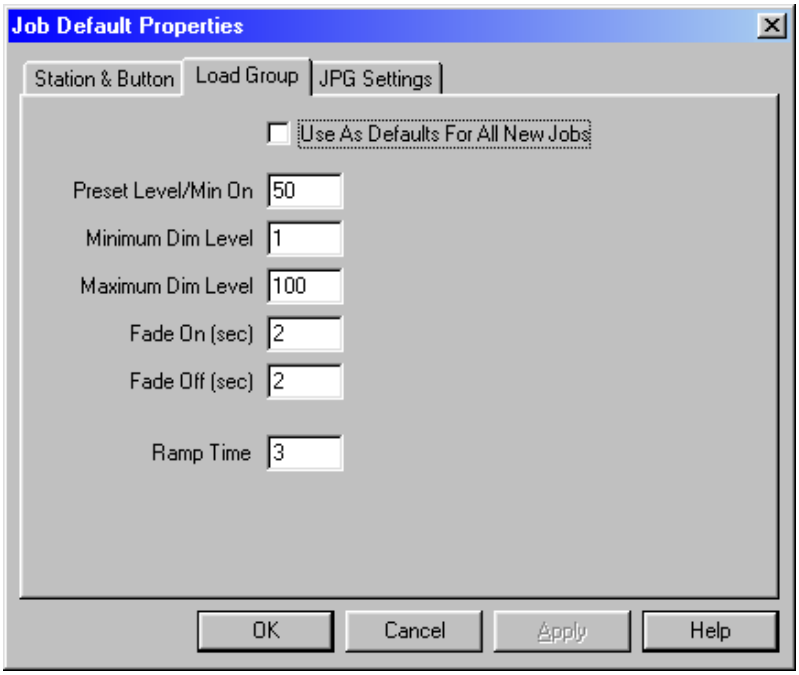
Text Color Click ▼ and select a default color for the engraving on the buttons.

LED Color Click ▼ and select a default color for the LEDs on the buttons.

Click [**Apply**] to save the changes in this tab without exiting the dialog box. Click [**OK**] to save the defaults and exit the dialog box.

Load Group Tab

Click the **Load Group** tab to set defaults for the load groups. Refer to "Load Group Tab" on page 136 for more detailed information on each option.



Use As Defaults for All New Jobs Select this option to apply the defaults to all new jobs in the database. If not selected, the defaults will apply only to the current job.

Preset Level/Minimum On This entry applies to several function types. Enter the default preset level (where 0 is no light and 100 is full brightness).

Minimum Dim Level (Dimmer functions) Enter the default minimum dim value for the load when ramping.

Maximum Dim Level (Dimmer functions) Enter the default maximum dim value for the load when ramping.

Fade On (sec) Enter the default number of seconds that the fade-on should last. This is the time from initial "turn on" until the preset, last known, or minimum turn-on level is reached.

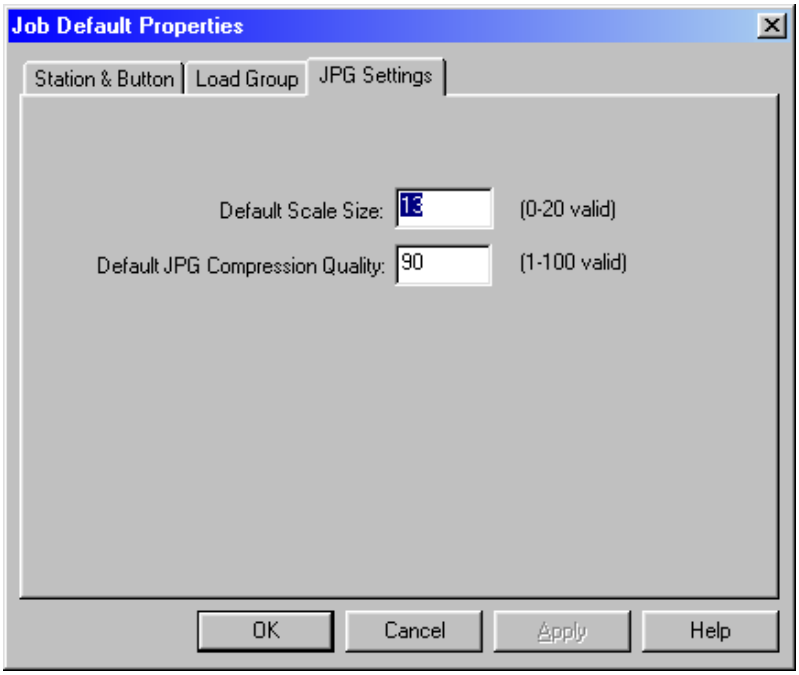
Fade Off (sec) Enter the default number of seconds that the fade-off should last. This is the time from the "on" state to the "off" state.

Ramp Time (Dimmer functions) Enter the default amount of time (in seconds) that it will take to go from the minimum dim level to the maximum dim level (and vice versa) when the switch is held in.

Click [**Apply**] to save the changes in this tab without exiting the dialog box. Click [**OK**] to save the defaults and exit the dialog box.

JPG Settings Tab

Click the **JPG Settings** tab to set up the default size and compression quality of the *.jpg* images of keypads saved with the "Save to JPG" option in the Stations view. Refer to "Save Keypad as .JPG Image" on page 107 for more information on the "Save to JPG" option.



Default Scale Size Enter the scale size of the *.jpg* images (from 0 to 20).

Default JPG Compression Quality Enter the compression quality of the *.jpg* images (1 to 100).

Click [**Apply**] to save the changes in this tab without exiting the dialog box. Click [**OK**] to save the defaults and exit the dialog box.

Database Functions 4

This chapter explains how to do the following:

- Add a new project database file
- Open an existing project database file
- Save or back up a project database file
- Add a job to a project database file
- Delete a job from a project database file

When you start LiteWare 3.8, it opens with an "untitled" database and one empty (unconfigured) job. You can open an existing database (see "Open a Database" on page 33), or if you want to add a new database, you can simply save the untitled database and name it, and then name and start configuring the job (usually called Job1 by default). Refer to the next section, "Add a New Database" for information on naming a new database. Refer to Chapter 5, "Job Parameters" for information on starting a new job.

Add a New Database

A LiteTouch project database is an ODBC database file that may contain one or more jobs. A "job" is defined as one complete lighting control design. It is your choice whether to place each job in a separate project database file or to group multiple jobs (normally associated jobs) into a single project database. A project database may contain, for example, all jobs in a region or development.

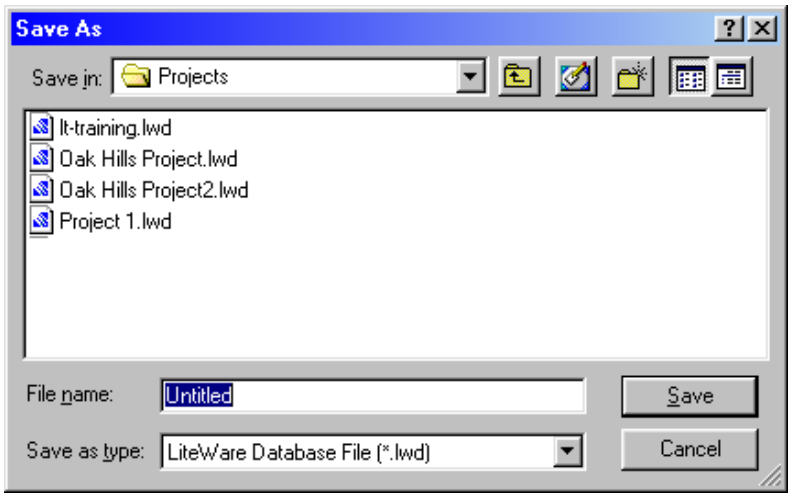
You can create as many project database files as you need for your design work, each one containing one or more jobs. A LiteWare 3.8 project database file uses a Microsoft Access 97 format with an *.lwd* extension to distinguish it from other Microsoft Access database files, which have an *.mdb* extension. If necessary, a LiteWare *.lwd* file can be opened in Microsoft

Access. In the Access Open dialog box, "Files of Type" box, select "All Files (*.*)," then select the *.lwd* file that you want to open.

Do the following to create a new project database file:

1. Click on the toolbar, or select **New** from the File menu to create a new project database file. The new database is created with the name "Untitled."

2. To name the new project database file, click on the toolbar, or select Save or Save As from the File menu. The Save As dialog box appears.



3. In the "File name" box, type a name for the new project database file. The *.lwd* extension is added automatically.

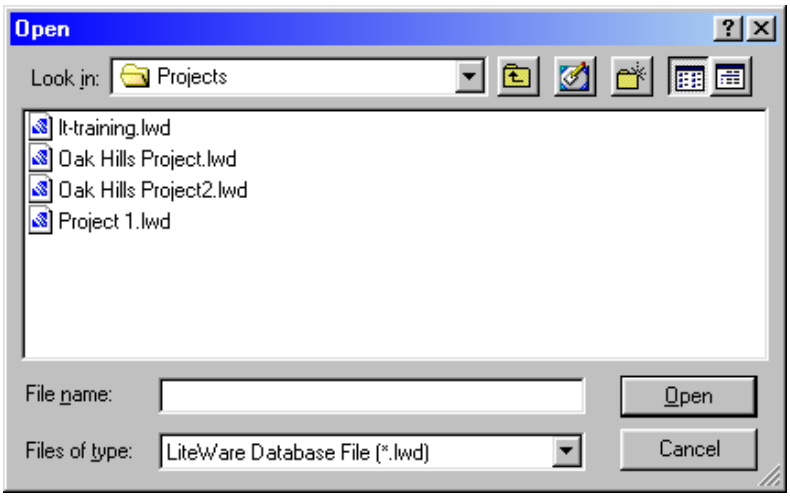
4. Click **[Save]** to save the new database with the specified file name.

A new database is created with one unconfigured job named "job" followed by a number (e.g., Job1, Job2). Use the Job Parameters view to rename and begin configuring the job. Refer to Chapter 5, "Job Parameters" on page 43 for information and instructions.

Open a Database

Do the following to open an existing project database file:

1. Click on the toolbar, or select **Open** from the File menu, and the following dialog box is displayed.



   All *.lwd* files in the default folder are listed. For information on opening *.mdb*, *.lwj*, *.prg*, *.def*, or *.cdf* file types, see "Open Other LiteWare Files" below.

2. Click the name of the file that you want to open, then click [**Open**]. The selected database file is loaded into LiteWare 3.8.

NOTE ☞ If you entered any names, comments, or descriptions that exceed the length reserved for them in the database, they are truncated when the database is saved. When you load the database, you will see the truncated entries. If truncating an entry makes it identical to another entry, and the entry must be unique, a character is added to the truncated entry to make it unique.

Open Other LiteWare Files

You can also use Open to open or import the following file types:

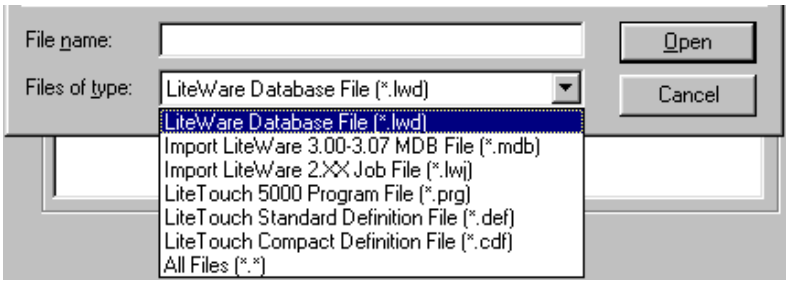
- Database files from LiteWare3.0 – 3.07 (*.mdb* files)
- Database files from LiteWare 2.xx (*.lwj* files)
- Program files for the 5000LC (*.prg* files)
- Definition files for Standard or Compact CCUs (*.def* or *.cdf* files)

Previous versions of database files are converted to the *.lwd* database format. The original database file is retained unchanged so you can load it into an earlier version of LiteWare or use it as a backup that will load into either version of LiteWare.

NOTE ☞ You can also import LiteWare database files into LiteWare 3.8 using the Import functions. If you use Import, the old database file is added to the currently opened database file as a new job, with the exception of *.mdb* files, which are saved to a new database file (see "Import Options" on page 220 for more information).

1. Click on the toolbar, or select **Open** from the File menu, and the Open dialog box is displayed.

2. Click the drop-down arrow at the "Files of type" box, and all of the file type options are listed.



3. Select the type of file that you want to open. All files of that type are listed in the dialog box. Select "All Files (*.*)" to display all files in the Projects folder.

4. Refer to the following sections for information on each LiteWare file type.

NOTE ☞ During database conversion, some loads may be rejected during assignment to modules due to error checking. Loads are rejected if they exceed the wattage rating of the circuit, module, or line feed or if the load voltage is too low for the module type. These loads can be reassigned during the next auto-assignment. Unassigned loads show a status of "U/A" in the Load and Programming Summary pane (in the ID column) until they are reassigned. However, "zero watt loads" are ignored during error checking as these loads must be manually assigned (see "Program File Import Limitations" on page 226 for details on zero watt loads).

Import LiteWare 3.0-3.07 Database File (*.mdb)

Project database files created in LiteWare3.0 – 3.07 have an *.mdb* extension. To open an *.mdb* file, do the following:

1. Select **Import LiteWare 3.00-3.07 MDB File (*.mdb)** from the "Files of type" drop-down list. All *.mdb* files are listed.

2. Click the name of the job that you want to open, and click [**Open**]. The following message is displayed.

Database File Conversion
This database file was created with an older version of LiteWare.
It will be copied and converted from Version 1 to Version 11.
and will be named the same as the current database with a .lwd extension
OK

3. Click [**OK**].

   The *.mdb* file is converted to a new database file with an *.lwd* extension. The original *.mdb* file is retained unchanged so you can load it into an earlier version of LiteWare or use it as a backup that will load into either version of LiteWare.

Import LiteWare 2.xx Job File (*.lwj)

Project database files created in LiteWare version 2.xx have an *.lwj* extension. To open an *.lwj* file, do the following:

1. Select **Import LiteWare 2.XX Job File (*.lwj)** from the "Files of type" drop-down list. All *.lwj* files are listed.

2. Click the name of the job that you want to open, and click [**Open**].

3. An Import Results box is displayed showing import detail and any errors that occurred during the import. Click [**OK**] to close the box.

4. Click on the toolbar, or select **Save** from the File menu, to save the converted file. The Save As dialog box appears.

5. The *.lwj* file is converted to a new database file with an *.lwd* extension. In the "File name" box, type a name for the new database file. The *.lwd* extension is added automatically. The original *.lwj* file is retained unchanged so you can load it into an earlier version of LiteWare or use it as a backup that will load into either version.

6. Click [**Save**] to save the new database with the specified file name.

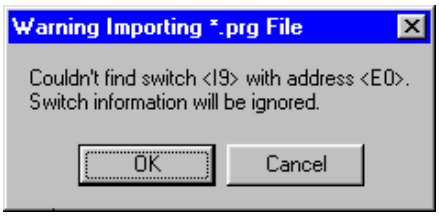
Open LiteTouch 5000 Program File (*.prg)

You can download a program file from the 5000LC and then open it in LiteWare 3.8. Download the file using the "To/From CCU" option (refer to "Download a Program File from the CCU" on page 241). To open a *.prg* file, do the following:

1. Select **LiteTouch 5000 Program File (*.prg)** from the "Files of type" drop-down list. All *.prg* files are listed.

2. Click the name of the program file that you want to open, and click **[Open]**.

   If any problems occurred during the import, warning messages, such as the following, are displayed.



3. Make note of the information in all warning messages and manually update the specified items.

4. An Import Results box is displayed showing import detail and any errors that occurred during the import. Make note of any errors. If necessary, you can copy and paste the contents of the Import Results box into Windows Notepad and save it. Click **[OK]** to close the box.

5. Click on the toolbar, or select **Save** from the File menu, to save the converted file. The Save As dialog box appears.

6. The *.prg* file is converted to a new job with an *.lwd* extension. In the "File name" box, type a name for the new job. The *.lwd* extension is added automatically. The original *.prg* file is retained unchanged so you can import it into an earlier version of LiteWare or use it as a backup that will load into either version.

7. Click **[Save]** to save the new job with the specified file name.

8. Refer to "Program File Import Limitations" on page 226 for information about limitations in the way the program file is converted to an active LiteWare job.

NOTE ☞ In order to see the design information in a program file created in LiteWare 3.8, you must *open* the program file rather than importing it. (Program files that were created in an earlier version of LiteWare do not contain design information.)

Open LiteTouch Standard/Compact Definition File (*.def/*.cdf)

You can open a program file compiled for a Standard or Compact CCU (*.def* or *.cdf*) in LiteWare 3.8. The program definitions can be taken from the program file, also called a definition file, or collectively from the other files associated with the job. All files related to the job must reside in the same folder. LiteWare will attempt to read all of the files, but only the definition file (*.def* or *.cdf*) is required. The data is opened as a new project database file with an *.lwd* extension.

To open a Standard or Compact definition file, do the following:

1. To open a Standard CCU file, select **LiteTouch Standard Definition File (*.def)** from the "Files of type" drop-down list. All *.def* files are listed.

   To open a Compact CCU file, select **LiteTouch Compact Definition File (*.cdf)** from the "Files of type" drop-down list. All *.cdf* files are listed.

2. Click the name of the file that you want to open, and click [**Open**].

   When you open a Standard/Compact definition file, LiteWare looks for and attempts to read all of the files related to the job. If the date and time on the *.def* or *.cdf* file are earlier than the *.swp* file, the *.def* or *.cdf* file is ignored.

3. Warning messages may be displayed during the conversion. Make note of the information in all warning messages and manually update the specified items.

4. An Import Results box is displayed showing import detail and any errors that occurred during the import. Note any errors. If necessary, you can copy and paste the contents of the Import Results box into Windows Notepad and save it. Click [**OK**] to close the box.

5. Click on the toolbar, or select **Save** from the File menu, to save the converted file. The Save As dialog box appears.

6. The *.def* or *.cdf* file is converted to a new job with an *.lwd* extension. In the "File name" box, type a name for the new job. The *.lwd* extension is added automatically. The original definition file is retained unchanged.

7. Click [**Save**] to save the new job with the specified file name.

   Refer to "Program File Import Limitations" on page 226 for information about limitations in the way the program file is converted to an active LiteWare job.

Save a Database

To save the current (open) project database file, click on the toolbar, or select **Save** from the File menu. You should save often to prevent the loss of work in the event of a computer problem or power outage.

If you are saving a new database for the first time, the Save As dialog box appears so that you can name the file. Refer to "Add a New Database" on page 31 for information.

When you exit LiteWare 3.8, if any work has not been saved, you are prompted to save before exiting, as shown below.

Click [**Yes**] to save the project database, or click [**No**] to exit without saving. Click [**Cancel**] to return to LiteWare 3.8.

NOTE ☞ If you entered any names, comments, or descriptions that exceed the length reserved for them in the database, they are truncated when the database is saved. When you load the database, you will see the truncated entries. If truncating an entry makes it identical to another entry, and the entry must be unique, a character is added to the truncated entry to make it unique.

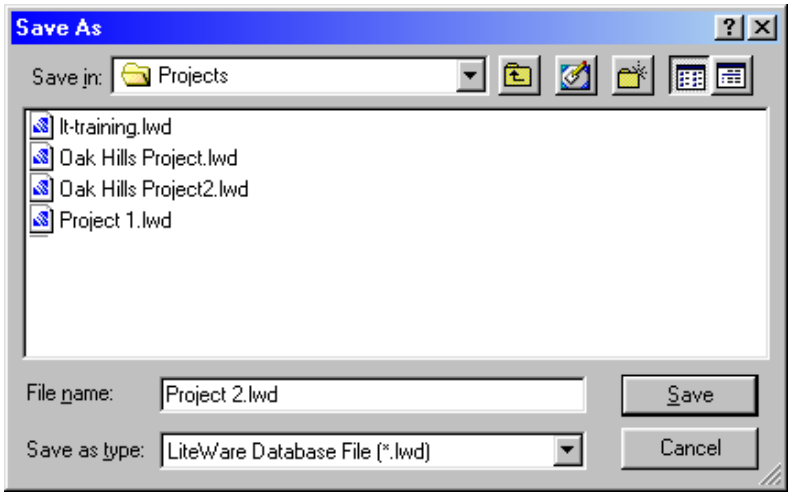
Save As or Back Up a Database

Use the Save As function to save the open project database file with a different name or to a different folder or drive. A copy of the file is created. You can do any of the following with the database copy:

- Save it to media on a different drive (e.g., Zip disk or CD) and store it in a secure place as a backup, or transfer it to a different computer
- Save it to a different folder or a different network drive
- Save it with a different name in the default folder, and edit the job or jobs to create a new job(s) with a similar configuration

Do the following to make a copy of the open project database file:

1. Select **Save As** from the File menu, and the following dialog box is displayed.



2. The name of the open database is selected. If you want to save the copy with a different name, type over the name in the "File name" box. If you select the name of an existing database file, the file is overwritten by the copy.

3. If necessary, at the "Save in" box, click or to change the drive and/or folder.

4. Click **[Save]** to save a copy of the selected project database file. The new database (copy) is opened in LiteWare 3.8.

Add a Job to a Database

When you create a new database, one design job is started for you. You can add another job or jobs to a database if desired.

It is your choice whether to place each job in a separate project database file or to group multiple jobs (normally associated jobs) into a single project database. A project database may contain, for example, all jobs in a region or development.

NOTE ☞ If you have multiple jobs in a project database file, you must have the Job Tree open in order to see the jobs or select them. To display the Job Tree, click **Job Tree** on the View menu. Refer to "Job Tree" on page 16 for more information,

Do the following to add a job to the current project database file:

1. Click on the toolbar, or select **Add Job** from the Edit menu.

   A job is added to the Job Tree and given a default name of "Job" followed by a number (e.g., Job1, Job2, etc.).

2. Click in the "Job Name" box in the Job Parameters view to name the new job. You may use alphabetic characters, numbers, spaces, and symbols, up to 28 characters.

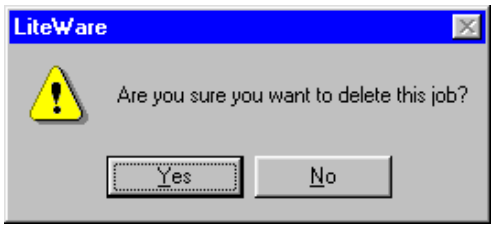
Refer to Chapter 5, "Job Parameters" on page 43 for information and instructions to begin configuring the new job.

Delete a Job from a Database

Do the following to delete a job from the current project database:

1. Select the job that you want to delete by clicking the job name in the Job Tree. This highlights the name and displays the job's setup in the Job Parameters view.

2. Click on the toolbar, or select **Delete Job** from the Edit menu. The following prompt is displayed.



3. To delete the job, click [**Yes**] and the job is deleted from the project database. To cancel the action, click [**No**].

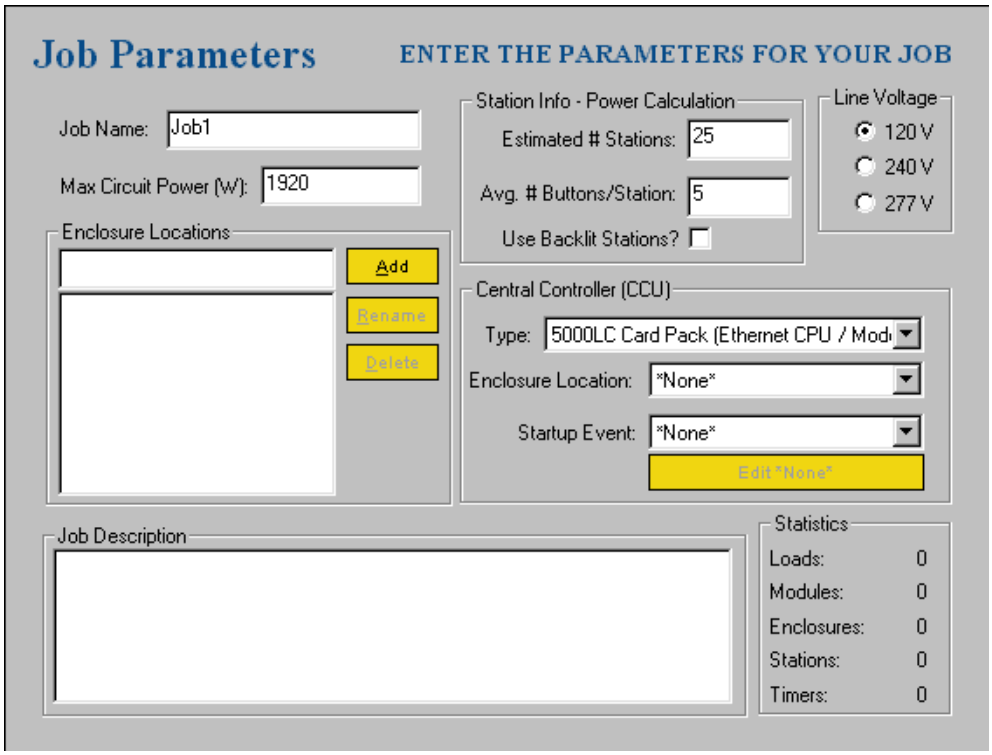
Notes

Job Parameters 5

This chapter provides information on the functions performed in the Job Parameters view. You use the Job Parameters view to do the following:

- Rename a job
- Add/edit/delete a load/enclosure location
- Set the default voltage for the job
- Select the CCU for the job
- Add/edit basic parameters of the job

The Job Parameters view is displayed by default when you open LiteWare 3.8, open a database, add a new database, or select a different job. If you have been working in a different view, click **[Parameters]** on the view selection bar to display the Job Parameters view, shown below.



Select the Job Parameters view as required to reference or update system information. Make entries as required to the following fields.

Job Name The name of the current job is displayed. When you open LiteWare 3.8 or add a new database, an empty (unconfigured) job is started (usually named "Job1"). To change the job name, click in the field, and type over or delete the existing or default name to enter a new name. The new job name is updated in the Job Tree when you click in a different field, select a different view, or save the database.

Max. Circuit Power (W) Enter the maximum circuit power (in watts) for each circuit. This value is determined by local code. If you reduce the circuit power and loads are already assigned to modules, they may be unassigned if the module circuits exceed the new value.

Station Info – Power Calculation

Estimated # Stations LiteWare 3.8 needs to know the approximate number of keypads (single-gang units) before it can assign a DC power supply for the lighting control system. Because you normally design the keypads after you assign the power supply, you must estimate the number of keypads you will need. You should estimate on the high side. Later, if your estimate changes, you should update this figure.

Avg. # Buttons/Station Enter the estimated average number of buttons per keypad. Later, if your estimate changes, you should update this figure.

Use Backlit Stations? If you will be adding backlit keypads (Coastal or Metropolitan keypad types), select this option so that LiteWare will assign the correct power supplies. (Backlit keypads require twice as much power as non-backlit.)

Line Voltage

Select the house current used at the residence: 120 V (domestic), 240 V (international), or 277 V (commercial). This selection determines the voltage of the modules assigned during auto-assignment. LiteWare does not currently support auto-assigning multiple voltages.

Enclosure Locations

Use the Enclosure Locations box to list the location or locations of the job's loads and enclosures. You will enter loads by location (in the Loads view), and later, in the Enclosures view, loads are assigned to modules and modules are placed in enclosures by location.

Add a Location To add a location, type the location name (e.g., basement, 2nd floor, etc.) in the text box, and click **[Add]**. The location is shown in the list beneath the text box.

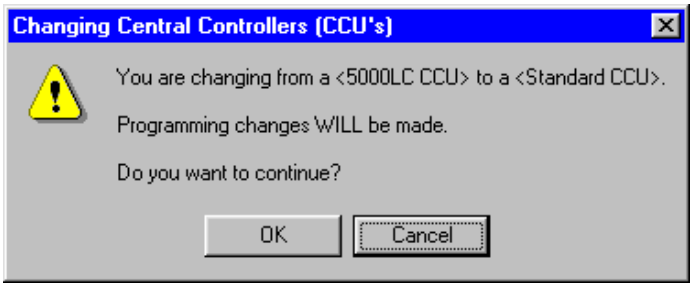
Delete a Location To delete a location, click it in the list to select it, then click **[Delete]**.

Rename a Location To rename a location, click it to select it. Type the new name in the text box, and click **[Rename]**. The new name replaces the old name in the list.

Central Controller (CCU)

LiteWare 3.8 supports all three LiteTouch CCUs: 5000LC, Standard, and Compact. The parameters that you need to select are determined by the type of CCU you select at the "Type" field. Information on each CCU's parameters is provided in the following sections.

Type Click , and select from the drop-down list the type of CCU for the job. "5000LC" is the default CCU type. If you select a different CCU, or if you are changing the CCU for an existing or imported job, the following prompt is displayed.



If you change the CCU for an existing job, the functions and programming are changed to be compatible with the selected CCU. If functions were set up that are not supported by the new CCU, the unsupported functions are

changed to "None." Refer to "CCU Function Conversion" on page 55 for information on the conversion of functions from one type of CCU to another.

Click **[OK]** to proceed. If you are changing the CCU for an existing job, any functions or programming you entered are converted and a message appears that shows the number of switches and timers changed. Click **[OK]** to proceed.

Enclosure Location Click , and select from the drop-down list (of the locations you added) the enclosure location where you plan to place the CCU.

Refer to the following sections for information on the parameters to enter for each type of CCU.

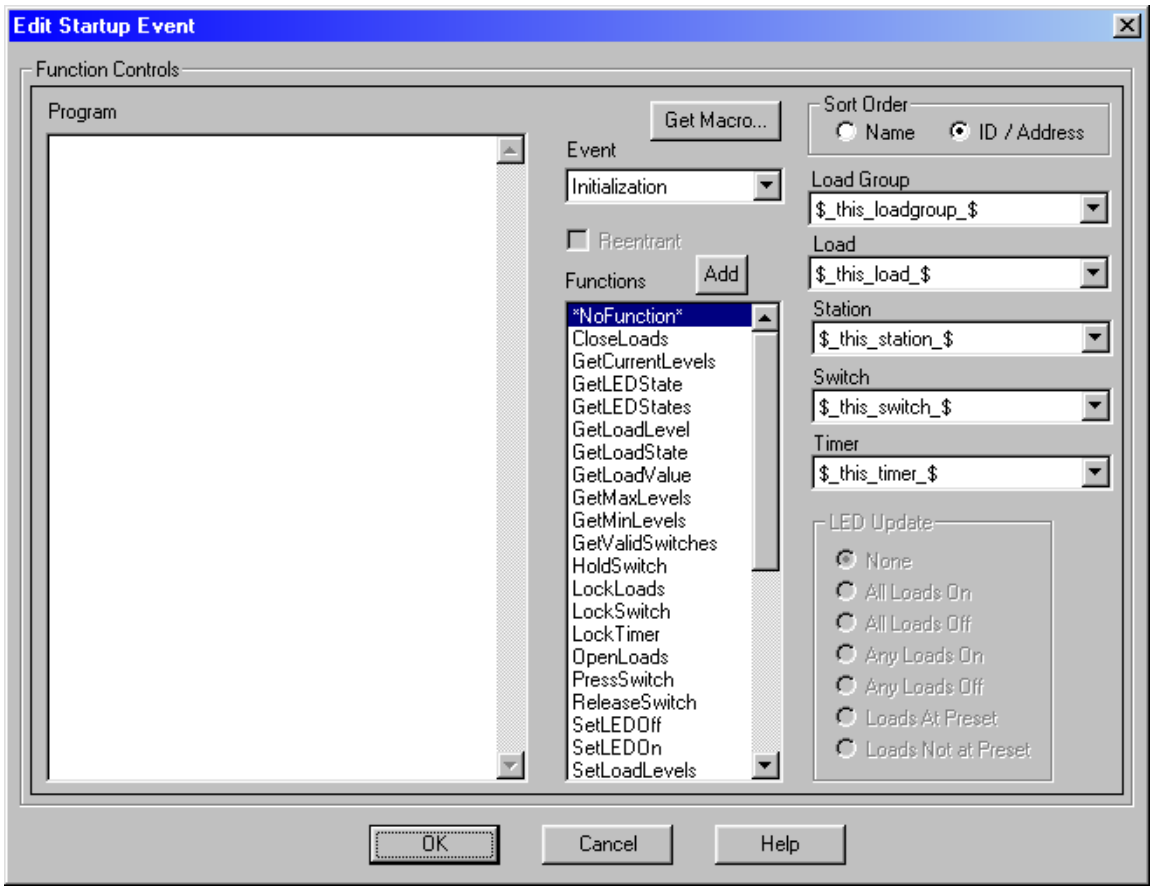
5000LC CCU

If you select **5000LC** as the CCU type, the following field is displayed.

Startup Event You can set up a startup event to execute a user program when the 5000LC CCU is started or restarted. A startup event is not required for a job. If a startup event is not set up, the CCU uses the last known settings at startup. If the CCU is powered off and cards are changed, the last known settings are lost, and the system starts with the current load settings. However, the LED status may be incorrect until a button is pressed on each keypad. When a startup event is defined, the system always uses it to set certain initialized settings—not necessarily the last known setting—for loads, LEDs, and so on.

To add a startup event to the job, click and select **Startup**. Then click **[Edit Startup]** to set up the startup event user program.

The following dialog box is displayed.



"Initialization" is selected by default at the "Event" field because initialization triggers the user program.

The remaining options are used to create the user program that is executed by the startup event, and the program is displayed in the Program box. For instructions, refer to Chapter 12, "5000LC Programming" beginning on page 181.

The **[Get Macro]** button is used to import a macro program. A macro is a file containing a pre-defined program. For information on macros, refer to Chapter 13, "5000LC Macros" on page 205.

Standard or Compact CCU

If you select **Compact**, **Standard**, or **Standard w/telephone interface** as the CCU type, the following field appears.

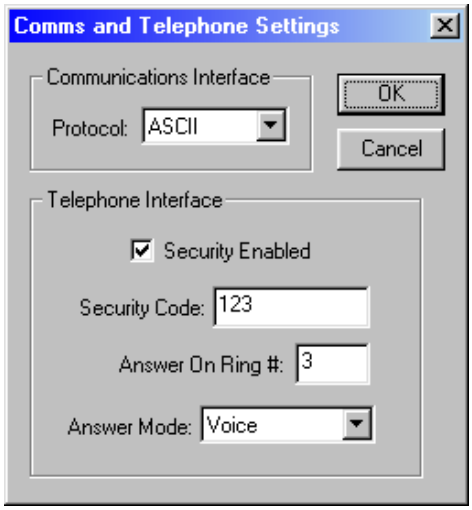
Parameters Click , and select from the drop-down list each parameter that you want to set up for the Standard or Compact CCU. The following parameters are available:

- Comms/Telephone (set up communications and telephone interfaces)
- LED Notification (set up gangs to notify an integrated control system of LED status)
- Switch/LED Invert (set up global parameters for the job).
- Switch Notification (set up gangs to notify an integrated control system of switch actions)
- Vacation Mode (define a vacation mode)

After you select a parameter, an **[Edit ...]** button becomes available below the field. Click the **[Edit ...]** button to open a dialog box and select or enter options for the parameter, as described in the following sections.

Comms/Telephone

Select the **Comms/Telephone** parameter to set up the communications interface for communications with the CCU and to set up the telephone interface if you are using the Standard CCU with telephone interface.



Communications Interface

The communications interface is used to transfer data to the CCU.

Protocol Click , and select the type of protocol you will be using to communicate with the CCU, either ASCII or CRC (cyclic redundancy check). CRC verifies that no errors occurred with the data transfer but takes a bit longer.

Telephone Interface

You need to set up the telephone interface if you are using the Standard CCU with telephone interface (modem).

Security Enabled Select this option if you want to set up a security code for the modem to prevent unauthorized access.

Security Code If security is enabled (above), enter the code that will be required to access the modem (e.g., 149). A simple code is recommended.

Answer on Ring # Enter the number of rings at which you want the modem to answer.

Answer Mode The modem can answer in either "modem mode" or "voice mode." Voice mode is primarily used to give a homeowner the ability to turn on or off one or more switches by telephone. Modem mode is required for uploads, downloads, and diagnostics.

NOTE ☞ When in voice mode, you can enter a code to change to modem mode. However, you cannot change from modem mode to voice mode. For this reason, if you want to use voice mode at any time, you should set the "Answer Mode" to "**Voice**."

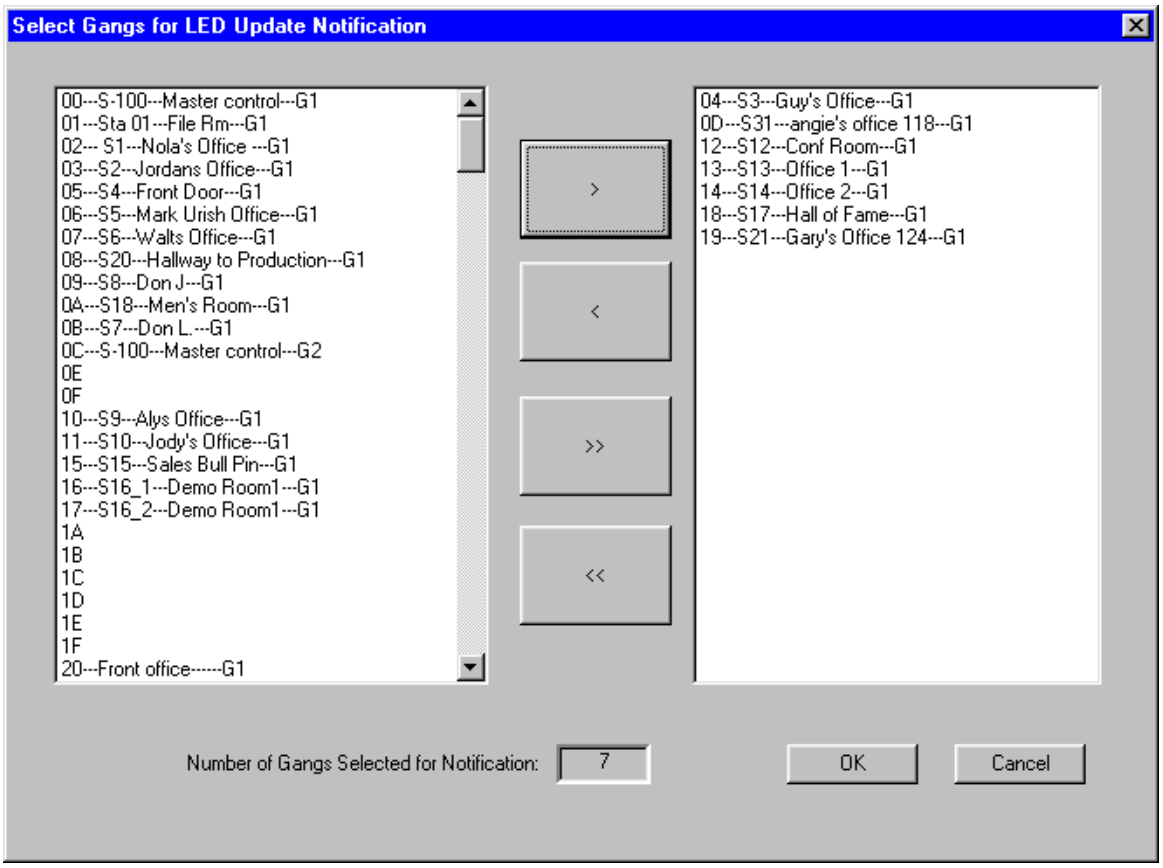
In voice mode, if you have specified a security code, the modem answers and waits to receive the code. If the code is incorrect, it disconnects. After the code is entered correctly (or if there is no code) the modem responds "LiteTouch 2000, ready." In voice mode, you can specify any of the following actions:

- To turn on a switch: press * and enter the 3-digit number that identifies a switch (e.g., *122). Only switches with a 3-digit numeric code can be accessed.
- To turn off a switch: press # and the 3-digit number that identifies a switch (e.g., #122). Only switches with a 3-digit numeric code can be accessed.
- To change to modem mode while in voice mode, enter *009.
- To change to voice mode if you set up the program file in modem mode, you must change the "Answer Mode" option to "Voice" and upload the program file to the CCU again.

Click **[OK]** to save the information and close the dialog box when you are finished.

LED Notification

(Used with system integration) Select the **LED Notification** parameter if the job's LiteTouch system is integrated with other control systems that require notification of switch LED status from the LiteTouch system.



Available gangs are listed in the left-hand box. Click the gangs that you want to select to send their switch or switches' LED status to another control system. To select several consecutive gangs, press and hold **<Shift>**, then click the first and last gangs in the group you want to select. To select several non-consecutive gangs, press and hold **<Ctrl>**, then click each gang that you want to select. The number of gangs you selected appears in the text box at the bottom of the window.

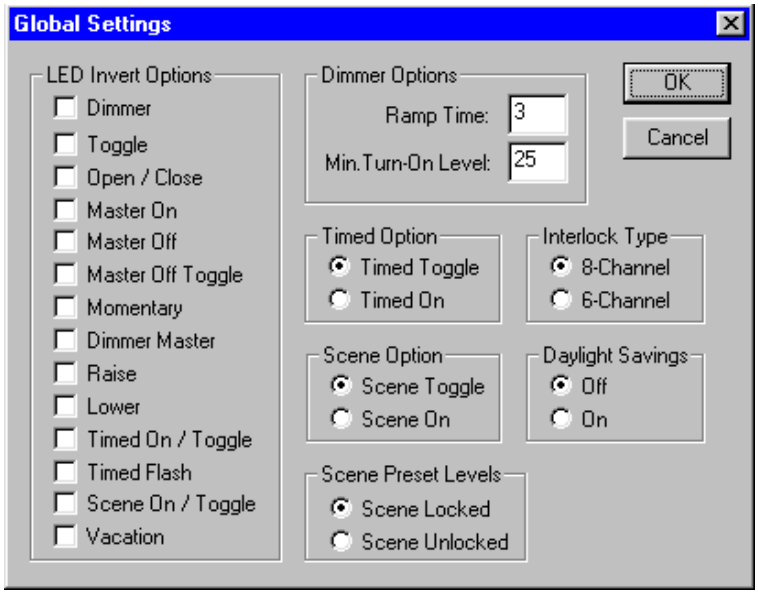
After you have selected the gangs, click [**>**] to move the selected gangs to the right-hand box. Click [**>>**] to move all gangs from the left-hand box to the right-hand box.

To "deselect" or move gangs back to the left-hand box, select the gang or gangs to move, and then click [**<**]. Click [**<<**] to move all gangs from the right-hand box to the left-hand box.

Click [**OK**] to save the information and close the dialog box when you are finished.

Switch/LED Invert

Unlike the 5000LC, which allows parameters to be set for each switch, timer, and so on, a Standard/Compact CCU, uses global parameters for all switches, timers, and so on. Select **Switch/LED Invert** to set up global parameters for the CCU such as the LED invert options, dimmer options, timer options, and so on.



LED Invert Options

LED action is defined by function. Select each function for which you want to reverse the LED action.

Dimmer Options

Enter the parameters for the following dimmer options:

Ramp Time

Enter the amount of time (in seconds) that it will take to go from the minimum dim value to the maximum dim value (and vice versa) when a button is pressed and held. This value is used for all dimmers in the system.

Minimum Turn On

Enter the minimum turn on value for a load. This value is used for all dimmers in the system.

Timed Option

Select whether you want the Timed Toggle function to act as a Timed Toggle or a Timed On function. The Timed function uses a timer to specify the duration that the load group will remain on. When the switch is activated, it turns on the load group and the timer, and then the load group automatically turns off after the specified duration.

Timed Toggle

Select this option if you want the load group to turn off if the user presses the button again while the load group is still on.

Timed On Select this option if you want the timer to reset and the load group to remain on for the full duration again if the user presses the button again while the load group is still activated.

Scene Option Select whether you want the Scene Preset Toggle function to act as a Scene Toggle or a Scene On function. The Scene Preset Toggle function is used to turn a scene on (and off if "Scene Toggle" is selected) at preset levels using specified fade on and fade off times.

Scene Toggle Select this option for the Scene Preset Toggle function if you want to use the same switch to turn the scene on and off. On the first button press, the scene fades on to scene levels. On the second press, it fades off.

Scene On Select this option for the Scene Preset Toggle function if you want one switch used to turn the scene on and a different switch used to turn the scene off.

Scene Preset Levels (Standard CCU Only) Select whether you want the scene preset levels for the Scene Preset Toggle function to be locked or unlocked.

Locked Select this option to lock the scene preset levels so that the user cannot change them.

Unlocked Select this option to unlock the scene preset levels so that the user can change them. The user can record the current settings of the scene by holding the switch in for more than 4 seconds. The newly recorded settings become the presets for the scene.

NOTE ☞ The Compact CCU has a switch on the bottom of the cabinet to lock or unlock scene preset levels.

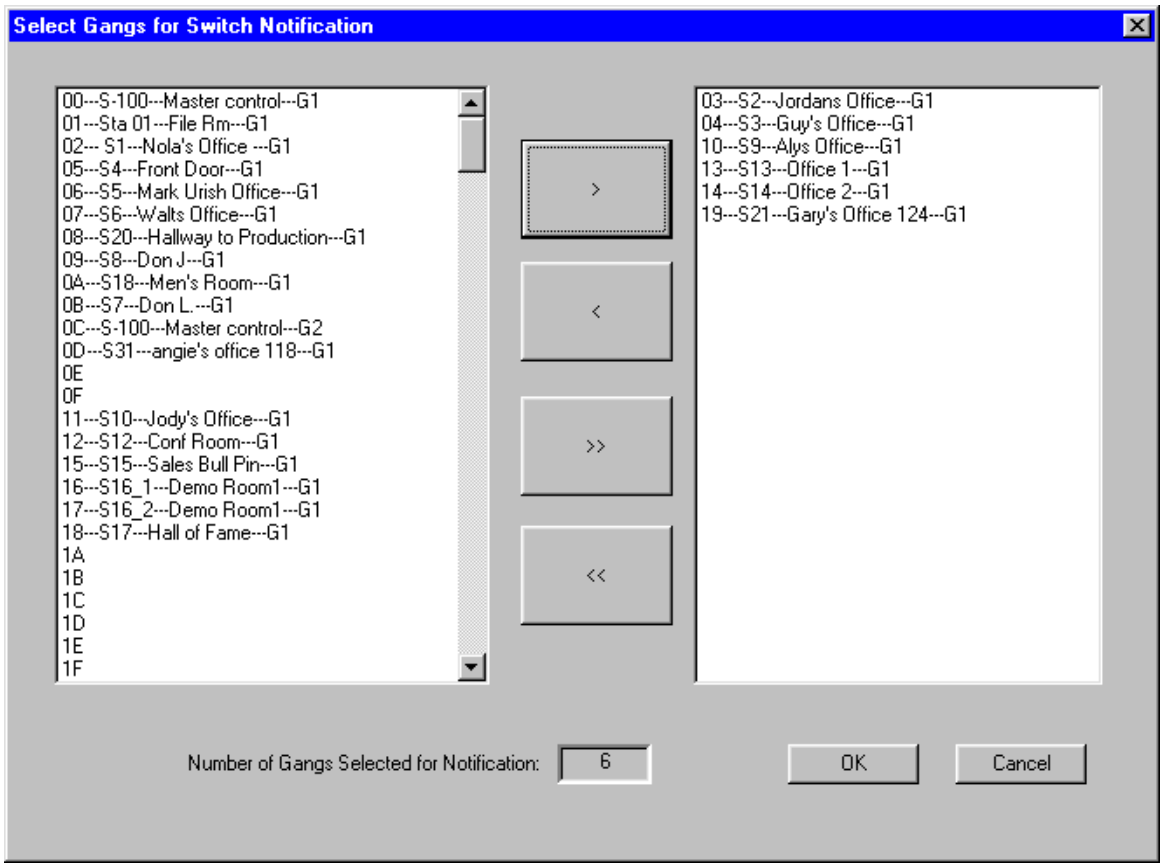
Interlock Type If you are using a relay module with interlocked relays, select the type of relay module: **8-Channel** or **6-Channel**.

Daylight Savings Use this option to turn daylight savings time (DST) on or off for the CCU. The Standard and Compact CCUs do not adjust automatically to DST. If you select "On," the CCU will be set to DST and will not change back to standard time unless you change the parameter to "Off." You may want to leave this setting on or off and simply keep the time difference in mind when setting up timers. Otherwise, you will have to change the setting each time DST starts and ends (e.g., in April and October).

Click **[OK]** to save the information and close the dialog box when you are finished.

Switch Notification

(Used with system integration) Select the **Switch Notification** parameter if the job's LiteTouch system is integrated with other control systems that require notification of switch actions from the LiteTouch system.



Available gangs are listed in the left-hand box. Click the gangs that you want to select to send their switch or switches' action to another control system. To select several consecutive gangs, press and hold **<Shift>**, then click the first and last gangs in the group you want to select. To select several non-consecutive gangs, press and hold **<Ctrl>**, then click each gang that you want to select. The number of gangs you selected appears in the text box at the bottom of the window.

After you have selected the gangs, click [>] to move the selected gangs to the right-hand box. Click [>>] to move all gangs from the left-hand box to the right-hand box.

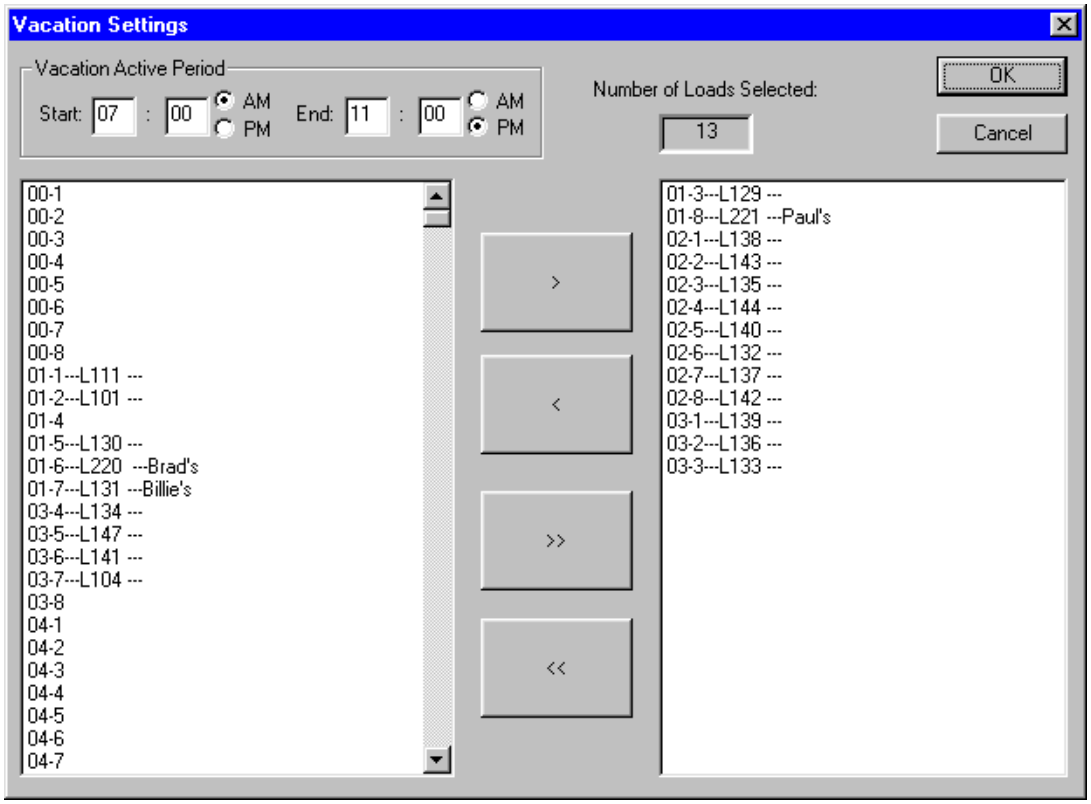
To "deselect" or move gangs back to the left-hand box, select the gang or gangs to move, and then click [<]. Click [<<] to move all gangs from the right-hand box to the left-hand box.

Click [**OK**] to save the information and close the dialog box when you are finished.

Vacation Mode

Select the **Vacation Mode** parameter to define a vacation mode. When the Vacation Switch function button is pressed, the vacation mode is activated, and the specified loads turn on and off in a random pattern to simulate routine household activities.

You specify a time period and assign loads. The CCU then randomly turns the loads on and off during the time period. The vacation mode is executed by pressing the specified button (see "Vacation Switch (Standard/Compact)" on page 136) and is ended by pressing the button again.



Vacation Active Period

Use these options to define the active period for the vacation mode.

Start Enter the time that the active period will begin. Enter the time in hours and minutes (HH MM) and select either AM or PM (e.g., 06 30 AM). The selected loads will begin to turn on and off randomly at this time each day.

End Enter the time that the active period will end. Enter the time in hours and minutes (HH MM) and select either AM or PM (e.g., 11 30 PM). The selected loads will all turn off at this time each day.

Assign Loads

Assign the loads that are to be turned on and off during the active vacation period (defined above), as follows.

Available loads are listed in the left-hand box. Click the loads that you want to select to turn on and off while in vacation mode. To select several consecutive loads, press and hold **<Shift>**, then click the first and last loads in the group you want to select. To select several non-consecutive loads, press and hold **<Ctrl>**, then click each load that you want to select. The number of loads you selected appears in the text box at the top of the window.

After you have selected the loads, click **[>]** to move the selected loads to the right-hand box. Click **[>>]** to move all loads from the left-hand box to the right-hand box.

To "deselect" or move loads back to the left-hand box, select the load or loads to move, and then click **[<]**. Click **[<<]** to move all loads from the right-hand box to the left-hand box.

Click **[OK]** to save the information and close the dialog box when you are finished.

CCU Function Conversion

If you change the CCU for an existing job (see "Central Controller (CCU)" on page 45), the functions and programming are converted to be compatible with the selected CCU. (If functions were set up that are not supported by the new CCU, the unsupported functions are changed to "None.") The following tables list the functions supported by each CCU and show how functions are converted from one type of CCU to another.

Conversion from 5000LC to Standard/Compact CCU		
5000LC	**Standard/Compact Multiple Load**	**Standard/Compact Single Load**
Dimmer	Dimmer (Master)	Dimmer (Single)
On	Master On	Master On
Off	Master Off	Master Off
Toggle (On)	Master Off Toggle	Toggle (Single)
Toggle (Off)	Master Off Toggle	Toggle (Single)
Scene	Scene Preset Toggle	Scene Preset Toggle
Scene On	Scene Preset Toggle	Scene Preset Toggle
Timed Toggle	Timed Toggle	Timed Toggle
Timed On	Timed Toggle	Timed Toggle
Motion Control	*None*	*None*
Open	*None*	*None*
Close	*None*	*None*

Conversion from 5000LC to Standard/Compact CCU (Continued)		
5000LC	Standard/Compact Multiple Load	Standard/Compact Single Load
Momentary	Momentary (Single)	Momentary (Single)
Raise	Raise (Single)	Raise (Single)
Lower	Lower (Single)	Lower (Single)
Vacation	Vacation Switch	Vacation Switch
Switch Pointer	*None*	*None*
Combination	*None*	*None*
User	*None*	*None*

Conversion from Standard/Compact to 5000LC CCU	
Standard/Compact	5000LC
Dimmer (Single)	Dimmer
Dimmer (Master)	Dimmer
Toggle (Single)	Toggle (On)
Scene Preset Toggle	Scene
Master On	On
Master Off	Off
Master Off Toggle	Toggle (Off)
Timed Toggle	Timed Toggle
Timed Flash	*None*
Open/Close	*None*
Momentary (Single)	Momentary
Raise (Single)	Raise
Lower (Single)	Lower
Vacation Switch	Vacation

Job Description/Statistics

You can use the Job Description box to enter any information that may be useful to you, including descriptions, contact names, date of last update, date that lighting control components were ordered, and so on. Maximum description length is 255 characters (approximately 4 lines). If you enter more than 255 characters, an error message will appear when you attempt

to save the file. Click [OK] to close the message, shorten the description, and save again.

The Statistics box shows the actual number of loads, modules, enclosures, keypads, and timers that were added to the job. This information can be useful to verify power supply size, order component quantities, and so on.

Notes

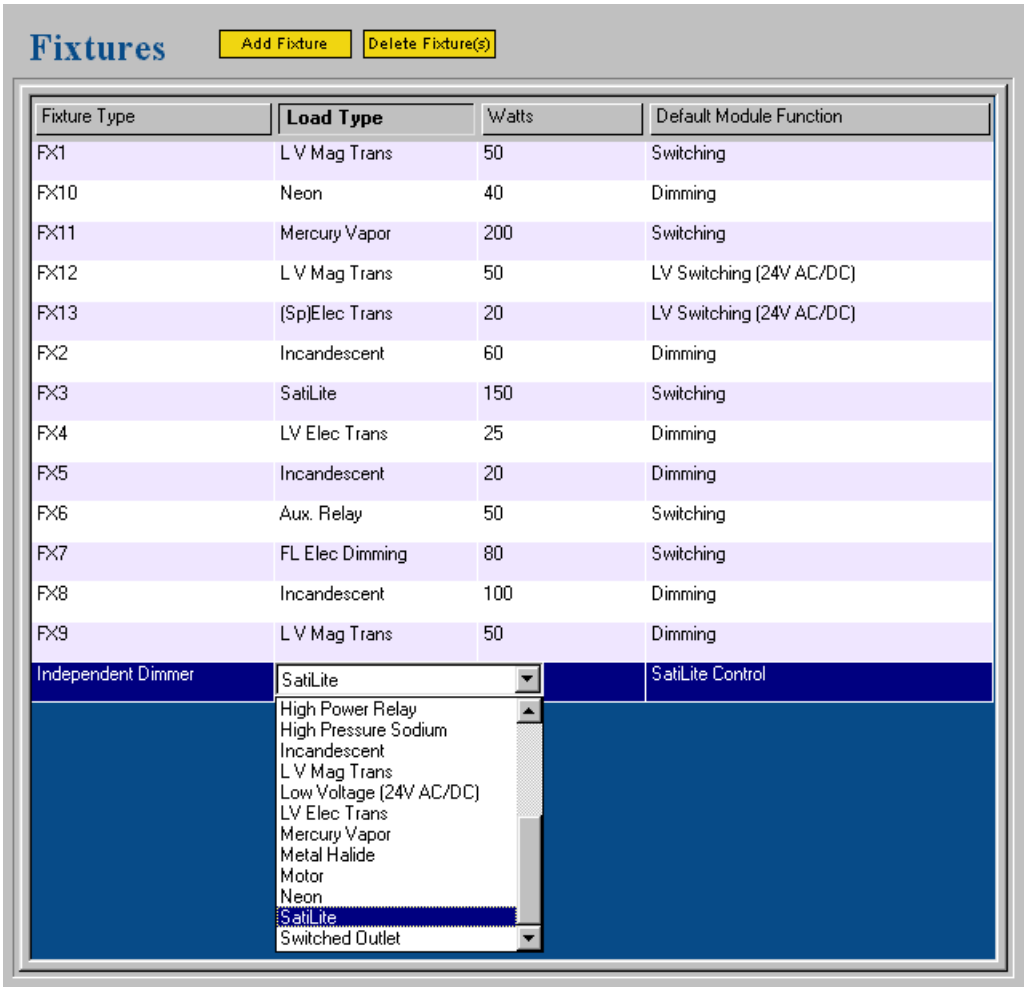
Fixtures 6

This chapter provides information on the functions performed in the Fixtures view. You use the Fixtures view to enter the fixtures for a job. The fixture list is a master list for the current project database file and all of the fixtures listed are available to all jobs in the database. At any time (and from any job) you can add or delete fixtures, and the fixture list is updated for all jobs in the database.

After you enter the name and other information for a fixture, it is added to the drop-down list in the "Fixture" field in the Loads view. In the Loads view, each time you select a fixture from the drop-down list, the fixture name, load type, watts, and function are added automatically to the table.

NOTE ☞ You can import a fixture list from another project database file. Refer to "Import Fixtures" on page 221 for more information. You can also add fixtures to the project database while adding loads in the Loads view. Fixtures added in the Loads view become part of the fixture list. Refer to "Edit a Fixture" on page 61 for more information.

Click **[Fixtures]** on the view selection bar to display the Fixtures view.



Sorting the List

As a default, the list of fixtures is sorted by fixture name. To change the order in which the list is sorted, click a column heading (e.g., Name, Load Type, etc.) to sort alphabetically or numerically by the items in the column. Click once to sort in ascending order; click again to sort in descending order.

Saving the Database

When creating or editing a fixture list, you should save your work periodically. Click on the toolbar, or select **Save** from the File menu.

Add a Fixture

Click [**Add Fixture**] to add a new fixture to the list. A line is added to the list with a default fixture name. Click in each table cell to enter or select the following information.

Fixture Type Click in the cell and type a name or identifier for the fixture (typically referenced on the blueprint or fixture schedule).

Load Type Double-click in the cell to display a drop-down arrow. Click and select the load type for the fixture. You can define any type of load including low voltage. The load type identifies the type of module that will be used to control the fixture.

Watts Click in the cell and type the power rating in watts for the fixture. Enter the wattage for one device only.

Default Module Function Double-click in the cell to display a drop-down arrow. Click and select the default function the module will use to control the load.

Edit a Fixture

Do the following to edit fixture information:

1. If necessary, find the fixture you want to edit using the vertical scroll bar on the right side of the window.
2. Double-click in the cell you want to edit to display a drop-down arrow or to highlight the text.
3. Type over the text, or click and make a selection from the drop-down list.
4. Click in another cell to update the information.

NOTE ☞ If you change a fixture's wattage, load type, or default function, you are given a choice to update the information for any load using the information (which may cause the load to be unassigned) or to leave all loads as they are.

NOTE ☞ Remember that when you make changes to a fixture, you are changing the fixture for all jobs in the database. If you have multiple jobs in the database, make sure the fixture is not being used with its current settings by another job before you change any of the settings. If other jobs may be affected, you should add a new fixture rather than edit an existing one.

Delete a Fixture

Do the following to delete a fixture or fixtures from the fixture list:

1. Click the fixture that you want to delete to select it. To select several consecutive fixtures, press and hold **<Shift>**, then click the first and last fixtures in the group you want to select. To select several non-consecutive fixtures, press and hold **<Ctrl>**, then click each fixture that you want to select.

2. Click [**Delete Fixture(s)**]. All selected fixtures are removed from the list.

NOTE ☞ If your project database file contains multiple jobs, before deleting a fixture make sure that it is not used in any other job.

Print a Fixture Schedule

A fixture schedule is a report that lists the fixtures shown in the Fixtures view. The fixtures are listed in the order they appear on the screen, and fixtures for all jobs in the current project database file are listed.

To print a fixture schedule, click on the toolbar, or select **Print** from the File menu. Click on the toolbar, or select **Print Preview** from the File menu, to view the report before printing it.

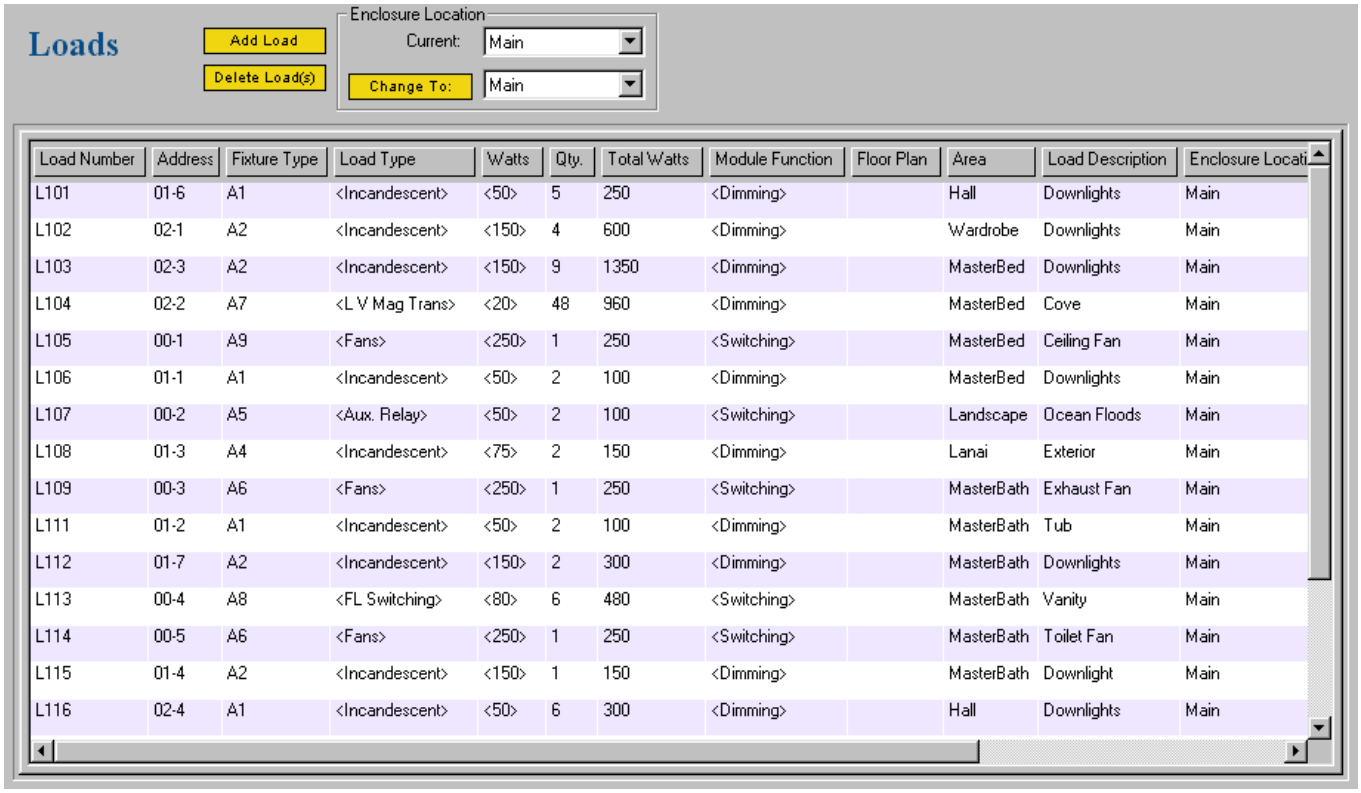
When you select **Print**, a standard Windows Print dialog box is displayed. If necessary, select the printer and specify the page range and number of copies. Click [**OK**] to print the schedule.

Loads 7

This chapter provides information on the functions performed in the Loads view. You use the Loads view to list and describe the electrical devices to be controlled by the LiteTouch system. After you have added loads to the job, assign the loads as follows:

- Assign loads to modules in the Enclosures view
- Assign loads to buttons on the keypads in the Stations view
- Assign loads to timers in the Timers view

Click **[Loads]** on the view selection bar to display the Loads view.



Load Number	Address	Fixture Type	Load Type	Watts	Qty.	Total Watts	Module Function	Floor Plan	Area	Load Description	Enclosure Locati
L101	01-6	A1	<Incandescent>	<50>	5	250	<Dimming>		Hall	Downlights	Main
L102	02-1	A2	<Incandescent>	<150>	4	600	<Dimming>		Wardrobe	Downlights	Main
L103	02-3	A2	<Incandescent>	<150>	9	1350	<Dimming>		MasterBed	Downlights	Main
L104	02-2	A7	<L V Mag Trans>	<20>	48	960	<Dimming>		MasterBed	Cove	Main
L105	00-1	A9	<Fans>	<250>	1	250	<Switching>		MasterBed	Ceiling Fan	Main
L106	01-1	A1	<Incandescent>	<50>	2	100	<Dimming>		MasterBed	Downlights	Main
L107	00-2	A5	<Aux. Relay>	<50>	2	100	<Switching>		Landscape	Ocean Floods	Main
L108	01-3	A4	<Incandescent>	<75>	2	150	<Dimming>		Lanai	Exterior	Main
L109	00-3	A6	<Fans>	<250>	1	250	<Switching>		MasterBath	Exhaust Fan	Main
L111	01-2	A1	<Incandescent>	<50>	2	100	<Dimming>		MasterBath	Tub	Main
L112	01-7	A2	<Incandescent>	<150>	2	300	<Dimming>		MasterBath	Downlights	Main
L113	00-4	A8	<FL Switching>	<80>	6	480	<Switching>		MasterBath	Vanity	Main
L114	00-5	A6	<Fans>	<250>	1	250	<Switching>		MasterBath	Toilet Fan	Main
L115	01-4	A2	<Incandescent>	<150>	1	150	<Dimming>		MasterBath	Downlight	Main
L116	02-4	A1	<Incandescent>	<50>	6	300	<Dimming>		Hall	Downlights	Main

NOTE ☞ Angle brackets around the load type, function, or wattage data indicate that the load is using the default value for the fixture. If no angle brackets appear

around the data, the default value has been overridden. Also, if the load type, function, or wattage data for a load assigned to a module are changed, the new information is verified to make sure it is compatible with the module. A prompt appears to allow you to accept or reject the change.

Adjust Column Widths

You can adjust column widths to accommodate the data and fit your computer monitor. Move the mouse pointer to the space between column headings (e.g., Load Number, Load Type, Module Function, Area, etc.). The pointer changes to a double arrow. Click and hold down the mouse button. A column separator line appears. Continue to hold the mouse button and drag the separator line to expand or contract the width of the column. You can drag the line all the way to the left to close up a column that you don't need. The changes are saved when you exit the program.

Sort the List

As a default, the load list is unsorted. To sort the list, click a column heading to sort alphabetically or numerically by the items in the column. Click once to sort in ascending order; click again to sort in descending order.

Auto-Complete an Entry

In cells with drop-down lists, you can type the first letter of a possible entry, and the first item starting with that letter in the drop-down list is entered in the cell. If necessary, type a second or third letter until the correct item is entered.

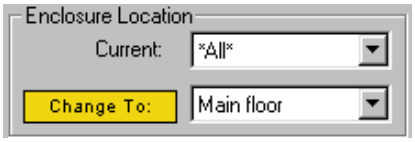
Save the Database

When creating or editing a load list, you should save your work periodically. Click on the toolbar, or select **Save** from the File menu.

Add a Load

Do the following to add loads to a job:

1. In the "Enclosure Location" box (above the list), click at the "Current" field, and from the drop-down list, select a location for the loads you are going to enter.



The list includes the locations you added in the Job Parameters view (see "Enclosure Locations" on page 45). LiteWare 3.8 uses the

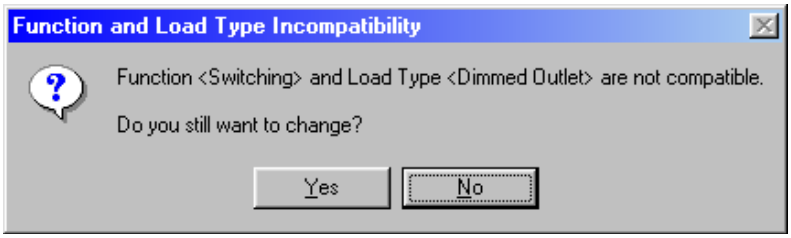
selected location to automatically assign the loads to enclosures and modules in the same location.

You can select "All" as the location. This option is generally used to view all loads in all locations when viewing or editing the load list.

You can select "Unassigned" as a temporary location for any loads that you are not ready to assign to a location. Refer to "Change Location" on page 68 for information on changing a load's location. You can also use "Unassigned" for any load that you do not want to assign to a specific location.

2. Click **[Add Load]** to add a new load to the list. A default load number is assigned, and the rest of the cells are unassigned. If you already have loads listed, a line is added to the list and the information from the previous line is copied into it so you can simply change any information that is different. Click in each table cell to enter or select the required parameter, as described below.

3. If you attempt to set up a load configuration with incompatible parameters, a warning message similar to the following is displayed.



Click **[Yes]** if you want to assign the parameter anyway; click **[No]** if you want to cancel the assignment.

4. When you have finished entering all loads for the selected location, save the file, then select the next location for which you want to enter loads (as described in step 1), and add the loads for that location.

Load Number Enter a number to identify the load (normally the three-digit number from the blueprint). A default load number is entered when you click **[Add Load]** with an "L" prefix and the next consecutive number. You can use any prefix (e.g., "Load," "LD," etc.). Type the load number with the prefix you want to use (e.g. "Load101"), and when you add the next load your prefix will be used with the next consecutive number as the default.

Address (Load address) An address is assigned to each load while auto-assigning or manually assigning loads (Enclosure view). The address assigned to the

load is shown here for reference. If addresses have not been assigned, "U/A" is displayed.

Fixture Type Double-click in the cell to display a drop-down arrow. If you have already added fixtures (see Chapter 6, "Fixtures"), click ▼ and select the fixture for the load. You can define any type of load, including low voltage. Press the **<Tab>** key or click in another cell. The load type, watts, and function are entered automatically based on the information from the fixture list.

If you have not added fixtures, or if you want to add a new fixture, enter a new name in the "Fixture Name" cell and enter the applicable information in the "Load Type," "Watts," and "Module Function" cells (as described below). The fixture you define will be added to the fixture list (in the Fixtures view) and to the drop-down list in the Loads view.

Load Type To change the default, double-click in the cell to display a drop-down arrow. Click ▼ and select the load type for the fixture. The load type identifies the type of module that will be used to control the fixture.

NOTE ☞ In LiteWare 3.8, low voltage loads are assigned automatically and handled in the same manner as regular loads.

Watts To change the default, click in the cell and type the power rating for the fixture in watts. Enter the wattage for one device only.

Qty Click in the cell and type the quantity of the fixture on the circuit.

Total Watts The total wattage (watts * the quantity) for the load is displayed in this cell.

Module Function To change the default, double-click in the cell to display a drop-down arrow. Click ▼ and select the function the module will use to control the load.

NOTE ☞ When you change the default load type, function, or wattage, the angle brackets are removed so you can tell that the default value has been changed.

Floor Plan This is an optional field. You can enter a floor plan location to describe a section of the building or the floor on which the load will be located. This is different from the enclosure location selected in the "Enclosure Location, Current" field. You can use a floor plan location in connection with an "Area" entry (see below) to more precisely describe the location of each load in the design job.

Double-click in the cell and type a floor plan description. You can use any type of description (e.g., second floor, east wing, pool area, etc.). As you enter floor plan descriptions, they are added to the drop-down list. If you have entered other floor plan descriptions, you can click and select one from the list.

Area This is an optional field. You can enter an area location to describe the specific area or room in which the load will be located. You can use area locations in connection with a "Floor Plan" entry (see above) to more precisely describe the location of each load in the design job.

Double-click in the cell and type an area description (e.g., hallway, master bath, garden, driveway, etc.). As you enter area descriptions, they are added to the drop-down list. If you have entered other area descriptions, you can click and select one from the list.

Load Description Double-click in the cell and type a description of the type of load (downlights, reading downlights, ocean flood, exhaust fan, shower light, etc.). As you enter load descriptions, they are added to the drop-down list. If you have entered other load descriptions, you can click and select one from the list.

Enclosure Location The enclosure location to which each load is assigned is displayed in this column. This is particularly useful if you selected "All" as the current location. Enclosure locations are created in the Job Parameters view.

Load Position The enclosure, module position, and load position of each assigned load is displayed in this column. If a load is not assigned, "U/A" is displayed.

Voltage To change the voltage for a load, double click in the Voltage cell, click , and select the voltage.

An entry in the "Voltage" column enclosed in brackets (e.g., <120>) indicates that the voltage was entered by the system, reflecting the voltage indicated in Job Parameters for the job. If the voltage is changed for the job, the value in brackets changes to match the new setting (e.g., <240>). A voltage that is entered manually is not enclosed in brackets, and the value is not changed by the system even if the voltage in Job Parameters is changed for the job.

Arc Fault To indicate that the load is an arc fault, double-click in the Arc Fault cell, click , and select **Yes**. This will group all arc fault type loads together so that they can be manually assigned to modules in order to minimize the number of arc fault breakers needed for the job.

Edit a Load

Do the following to edit a load's information:

1. In the "Enclosure Location" box (above the list), click ▼ at the "Current" field, and from the drop-down list, select the location of the load(s) you want to edit. All loads assigned to the selected location are listed. Select "All" to list all loads in all locations. Select "Unassigned" to list only loads that were not assigned to a specific location. (Refer to "Change Location" below for information on changing a load or loads location.)

2. If necessary, find the load that you want to edit using the vertical scroll bar on the right side of the window.

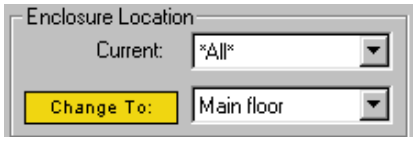
3. Type over the text, or click ▼ and make a selection from a drop-down list.

4. Click in another cell to update the information.

NOTE ☞ If you modify a load already assigned to a module, it is automatically reassigned to a module based on the new requirements. If an assignment cannot be made, a message is displayed, and you can cancel the change if desired.

Change Location

Enclosure locations are added in the Job Parameters view (see "Enclosure Locations" on page 45). When you add loads in the Loads view, you select one of the locations for the loads from the drop-down list at the "Current" field in the "Enclosure Location" box. LiteWare 3.8 uses the selected location to automatically assign the loads to enclosures and modules in the same location. You can change the location of a load or loads at any time.



You might change the location of a load for any of the following reasons:

- You have too many loads of one type in one location and module vacancies at another location.
- One or more loads were added in the wrong location.

- There were changes to the design.
- Loads were added to the "All" or "Unassigned" location categories temporarily and need to be assigned.

Do the following to change the location of a load or loads:

1. Click ▼ at the "Current" field, and select the current location of the loads you want to move. Select "All" to view all loads in all locations.

2. In the load list, click to select the load or loads you want to move.

   To select several consecutive loads, press and hold **<Shift>**, then click the first and last load in the group you want to select. To select several non-consecutive loads, press and hold **<Ctrl>**, then click each load that you want to select.

3. At the "Change To" field, click ▼ and, from the drop-down list, select the location to which you want to move the selected loads.

   You can select "All" as the location. However, this option is generally used for viewing or editing the load list to view all loads in all locations.

NOTE ☞ You can select the "Unassigned" location if you want to remove a load from a location but do not yet know where to assign it.

4. Click [**Change To**] to change the location of the selected loads to the location shown in the "Change To" field.

Delete a Load

Do the following to delete a load or loads from the load list:

1. Click the load that you want to delete to select it. To select several consecutive loads, press and hold **<Shift>**, then click the first and last loads in the group you want to select. To select several non-consecutive loads, press and hold **<Ctrl>**, then click each load that you want to select.

2. Click [**Delete Load(s)**]. All selected loads are removed from the list.

NOTE ☞ If you remove loads that have been assigned to modules, you may want to run auto-assign again to maintain optimal load assignments (refer to "Assign Loads (Auto-Assign)" on page 75 for information).

Print a Load Schedule

A load schedule is a report that lists the loads shown in the Loads view. The loads are listed in the order they appear on the screen.

To print a load schedule, select the location of the loads for which you want to print a schedule, and click on the toolbar, or select **Print** from the File menu. Click on the toolbar, or select **Print Preview** from the File menu, to view the report before printing it.

When you select **Print**, a standard Windows Print dialog box is displayed. If necessary, select the printer and specify the page range and number of copies. Click **[OK]** to print the schedule.

NOTE ☞ The printed load schedule shows the Loads view "Floor Plan" and "Area" entries in one column labeled "Floor/Area." If both entries were made in the Loads view, they are separated by a backslash (/) in the load schedule. If only the "Area" entry was made, it is preceded by a backslash in the load schedule.

Enclosures 8

This chapter provides information on the functions performed in the Enclosures view. After you add loads to a job in the Loads view, you use the Enclosures view to add enclosures and modules and to assign loads to modules. Normally, you will have LiteWare 3.8 "auto-assign" loads and then make changes to the configuration manually as required.

Auto-Assign Loads

Most loads can be assigned automatically in LiteWare 3.8. However, some modules and their associated loads may require manual assignment.

NOTE ☞ Some loads may be rejected during assignment to modules due to error checking. Loads are rejected if they exceed the wattage rating of the circuit, module, or line feed or if the load voltage is too low for the module type. These loads can be reassigned during the next auto-assignment. Unassigned loads show a status of "U/A" in the Load and Programming Summary pane (in the ID column) until they are reassigned. However, "zero watt loads" are ignored during error checking as these loads must be manually assigned (see "Program File Import Limitations" on page 226 for details on zero watt loads).

LiteWare 3.8's auto-assignment (Assign Loads function) assigns loads in the most cost-effective configuration possible. During auto-assignment, LiteWare 3.8 reviews the load list for each location and determines which modules are needed. After it has identified the required modules, LiteWare 3.8 determines how many enclosures are needed and places the modules inside the enclosures. It then assigns the appropriate loads to each module and adds required power supplies.

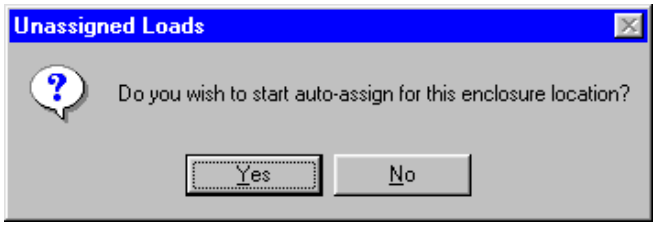
NOTE ☞ The voltage selection in the Job Parameters view (see "Line Voltage" on page 44) determines the default voltage of unassigned loads. LiteWare assigns loads based on their line voltages.

You should use the Assign Loads function initially to assign the load list for each location. You can also use it later as additions or changes are made to the load list to assign any unassigned loads.

NOTE ☞ LiteWare 3.8 cannot automatically assign some loads. A prompt appears to inform you of any loads that cannot be assigned so that you can assign the loads manually (see "Assign Loads (Auto-Assign)" on page 75).

LiteWare 3.8's auto-assignment of loads is available in two ways:

- Click [**Assign Loads**] after you open the Enclosures view. Refer to "Assign Loads (Auto-Assign)" on page 75 for information.
- Respond to the Unassigned Loads prompt that appears (shown below) if there are any unassigned loads in the current location when you click [**Enclosures**] on the view selection bar or when you select a different "current" location.



Click [**Yes**] if you want LiteWare 3.8 to auto-assign the loads. The Assignment Options dialog box appears (see "Assign Loads (Auto-Assign)" on page 75 for information).

Select [**No**] if you want LiteWare 3.8 to auto-assign the loads later or if you plan to assign them manually.

The Enclosures view is displayed for the current location. For information on selecting a different location, refer to "Location Functions" on page 77.

Manually Assign Loads

If desired, you can manually add all enclosures, modules and power supplies and manually assign all loads to modules. More commonly, you will manually edit LiteWare 3.8's automatically assigned configuration. Because auto-assignment is based on information from the load list, you may need to add some modules manually or change some auto-assigned modules to modules that you would prefer to use.

You will need to make manual assignments in the following cases:

Data input modules
A data input module has switch inputs rather than loads, and switch inputs cannot be auto-assigned. You can add a data input module to a job in either the Enclosures view or the Stations view. Then you configure the data input module and its inputs in the Stations view.

Older model 6-channel relays and dimmers
Older model fluorescent dimmers
LiteWare 3.8 only selects standard model dimmers and relays during auto-assignment. Older models are listed in the "Available Modules" drop-down list and must be selected manually.

Dual 20 amp dimmers
Dual 20 amp dimmer modules are used in heavy load areas or reduced noise situations because of their heavy-duty chokes and traces. This model is included in the "Available Modules" drop-down list and must be selected manually.

Other specialty modules
If you need to add a module to the job that is not listed in the "Available Modules" drop-down list, you will need to identify it as an "Unknown Module," a selection in the drop-down list. Refer to "Add a Module or Power Supply" on page 84 for information.

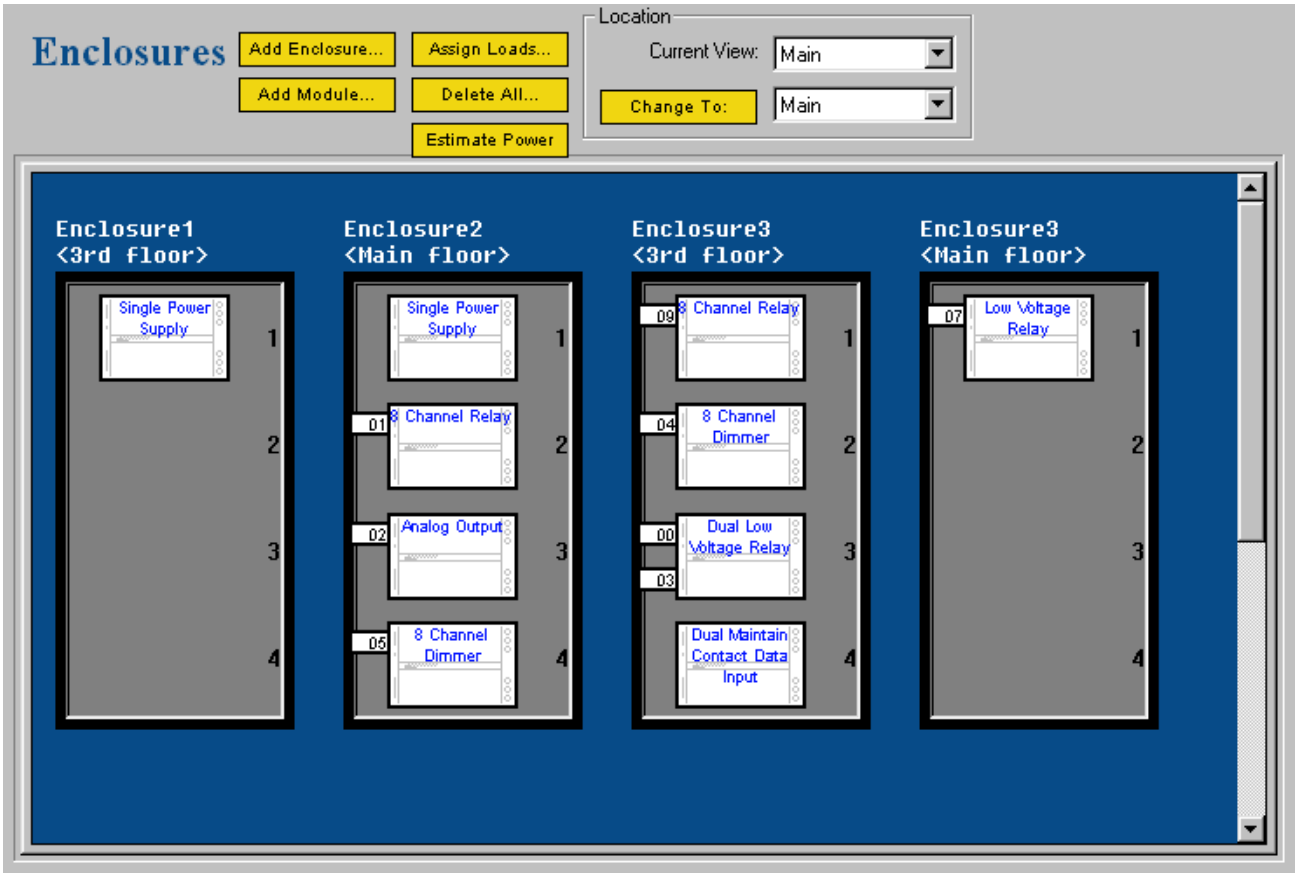
Arc fault loads
To minimize the number of arc fault breakers needed, all arc fault designated loads must be manually assigned.

If LiteWare 3.8 is unable to assign a load in the load list during an auto-assignment, a message informs you and identifies the load(s). Any unassigned loads remain on an "unassigned loads" list (NOT in the "unassigned" location) until they are assigned.

Refer to "Add a Module or Power Supply" on page 84 for information on manually adding a module, and refer to "Edit a Module" on page 88 for information on substituting a module, manually assigning loads, and making other module related changes.

Enclosures View

Click [**Enclosures**] on the view selection bar to display the Enclosures view, shown below with a sample configuration.



After loads have been assigned, the Enclosures view graphically displays the enclosures, modules, and power supplies in the selected location (or "All" locations). An enclosure appears as a gray box with the enclosure name and location above it. Assigned modules or power supplies appear in the enclosure positions to which they are assigned (e.g., 1 through 4).

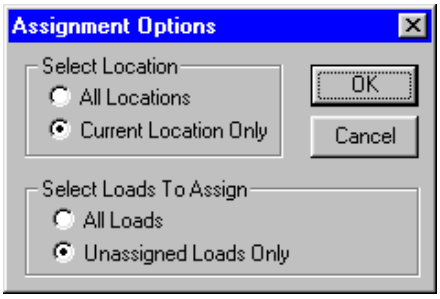
NOTE ☞ It is an NEC code violation to place 277 volt modules in the same enclosure as 120 or 240 volt modules. LiteWare will not allow modules with different voltage ratings to be placed in the same enclosure.

Assign Loads (Auto-Assign)

To have LiteWare 3.8 automatically add enclosures and modules and assign loads, do one of the following:

- Click [**Yes**] at the Unassigned Loads prompt (refer to "Auto-Assign Loads" on page 71) that appears if there are any unassigned loads in the current location when you click [**Enclosures**] on the view selection bar, or when you select a different "current" location (refer to "Location Functions" on page 77).
- Click [**Assign Loads**] after you open the Enclosures view.

The Assignment Options dialog box is displayed.



Select Location Click **All Locations** to auto-assign loads for all locations. Click **Current Location Only** to auto-assign loads only to the current location.

NOTE ☞ If you want to auto-assign loads to a different "current location only," click [**Cancel**] to cancel the auto-assignment, select a different location, and then click [**Assign Loads**] to auto-assign loads in the location. Refer to "Location Functions" on page 77 for information on changing the current location.

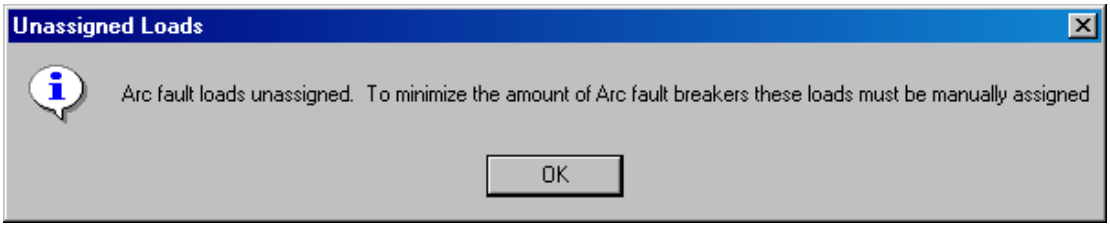
Select Loads to Assign Click **All Loads** to unassign any loads that have been assigned to the selected location(s) and then auto-assign all loads to the selected location(s). Click **Unassigned Loads Only** to auto-assign only loads that have not been assigned. Generally, if there are several unassigned loads for the selected location, you should select "All Loads." The auto-assignment is most efficient when assigning all loads to a location.

Click [**OK**]. Enclosures are added, modules and power supplies are added to enclosures, and loads are assigned to the modules in the most cost-effective configuration.

NOTE ☞ In LiteWare 3.8, low voltage loads are assigned automatically and handled in the same manner as regular loads.

If there are loads that cannot be assigned, the following prompt is displayed.

If there are any arc fault designated loads, the following prompt is displayed.


Unassigned Loads
Arc fault loads unassigned. To minimize the amount of Arc fault breakers these loads must be manually assigned
OK

You can view all unassigned loads from the Add Module or Edit Module dialog box. For information on assigning loads manually, refer to “Add a Module or Power Supply” on page 84 or “Edit a Module” on page 88.

You do not have to assign the loads immediately, but the “Unassigned Loads” message is displayed each time you open the Enclosures view until the unassigned loads are assigned.

NOTE ☞ The auto-assignment process takes a considerable length of time if several dimming loads (more than 150) are entered in the loads list in the same location. Auto-assignment time can be shortened by placing the loads in multiple locations.

Auto-Assign Parameters

- The 5000LC supports three-digit keypad addresses from 0 to FFF but only supports physical addresses from 0 to FF. Keypad addresses are auto-assigned using addresses 01 through 99 before using hexadecimal addresses. The Standard and Compact CCUs support only keypad addresses 0 to FF. Zeros can be used if required.

- Power supplies are automatically placed in enclosures as they are generated (at the correct enclosure location). Dual power supplies are used rather than two single power supplies.
- Auto-assignment will not assign more power to a module than the maximum circuit power specified for the job in the Job Parameters view.
- Modules are initially placed in enclosures in the following order: 1) quads, 2) 8-channel dimmers, 3) 8-channel relays, followed by other modules.

Location Functions

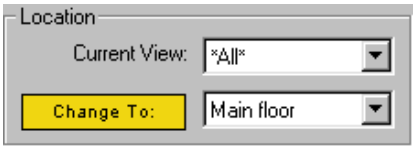
Locations are added in the Job Parameters view (see "Enclosure Locations" on page 45). When you add loads in the Loads view, you select one of the locations for the loads from the drop-down list at the "Current" field in the "Location" box. When you open the Enclosures view, the Loads view current location is also the current location in the Enclosures view. LiteWare 3.8 auto-assigns loads to enclosures and modules by location.

The prompt to auto-assign unassigned loads only appears if there are unassigned loads in the current location. You can choose to auto-assign loads in the current location only or in all locations.

After loads are assigned, only the enclosures and modules for the "current" location are displayed in the Enclosures view.

If you want to auto-assign loads to a different location, or if you want to display the enclosures and modules for a different location, do the following to change the current location.

In the "Location" box, click ▼ at the "Current" field, and from the drop-down list, select the location.



Select "All" if you want to view all enclosures or assign loads to all locations at the same time.

Select “Unassigned” to view enclosures or assign loads that were added in the “unassigned” location. “Unassigned” does not necessarily display all unassigned loads. There may be unassigned loads in other locations. You can continue to use an “unassigned” location for modules and loads that you want to assign to a different location later, or you can move the enclosure and modules to a different location (refer to “Change Location” below for information).

If there are any unassigned loads in the location you select, the Unassigned Loads (auto-assign) prompt appears. Refer to “Auto-Assign Loads” on page 71 for information.

Change Location

Do the following to change the location of an enclosure (and all modules and power supplies in it):

1. Click ▼ at the “Current” field, and select the current location of the enclosure you want to move. Select “All” to view all enclosures in all locations.

2. Click the enclosure you want to move to select it (a selected enclosure has a yellow border).

3. At the “Change To” field, click ▼ and, from the drop-down list, select the location to which you want to move the selected enclosure.

   You can select the “Unassigned” location if you want to remove an enclosure from a location but do not yet know where to locate it.

4. Click [**Change To**] to change the location of the selected enclosure to the location shown in the “Change To” field.

NOTE ☞ If more than one enclosure has a vacant position in a location, you can move modules between enclosures to eliminate an enclosure, if desired. Click the module you want to move (a selected module has a yellow border), hold down the mouse button, drag the module into the desired position in the other enclosure, then release the mouse button.

Estimate Power

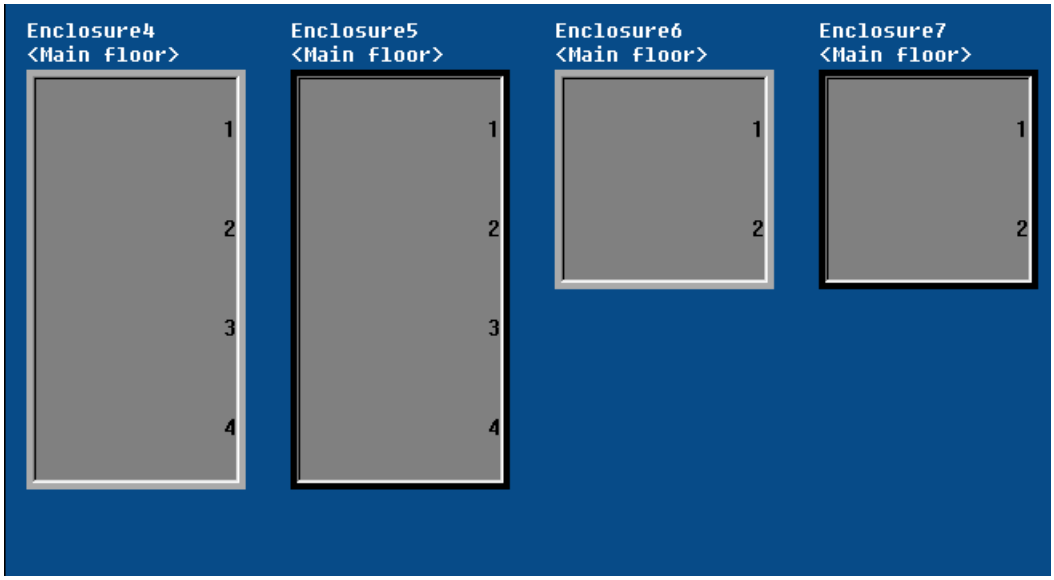
When you set up the job parameters (see Chapter 5, “Job Parameters”), you enter an estimated number of keypads and an estimated average number of buttons per keypad. LiteWare uses this information to determine the number of power supplies you will need. After you have added enclosures, modules, and stations to the job, you can click **[Estimate Power]** to add a more accurate number of power supplies to the job. If no additional power supplies are required, they will not be added.

Enclosure Functions

There are two types of enclosures in two sizes:

- 2- or 4-module capacity surface mount
- 2- or 4-module capacity recessed mount

Each type of enclosure is graphically illustrated in the Enclosures view. For example, in the following illustration, enclosures 4 and 6 are recessed mount and enclosures 5 and 7 are surface mount.



You can also determine the enclosure type at the “Enclosure” field in the Edit Enclosure dialog box (see “Edit an Enclosure” on page 80).

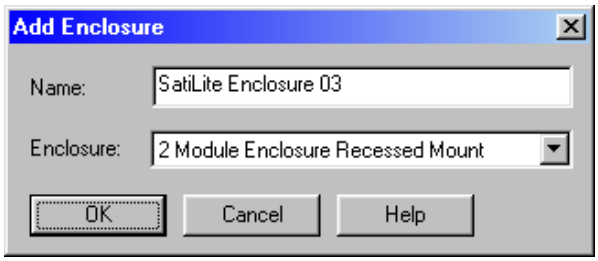
NOTE ☞ A SatiLite keypad (see "SatiLite Keypad" on page 3) is classified as both a keypad and a module. For this reason, it is shown in the Enclosures view (as a "SatiLite Enclosure") as well as the Stations view.

Add an Enclosure

During auto-assignment, LiteWare 3.8 adds any required enclosures to the selected location. You normally only need to add an enclosure if you are manually adding modules or other components.

To add an enclosure, click the [**Add Enclosure**] button, or right-click anywhere in the Enclosures view, and select **Add Enclosure** from the shortcut menu.

The following dialog box is displayed.



Name Type a name for the enclosure or accept the default.

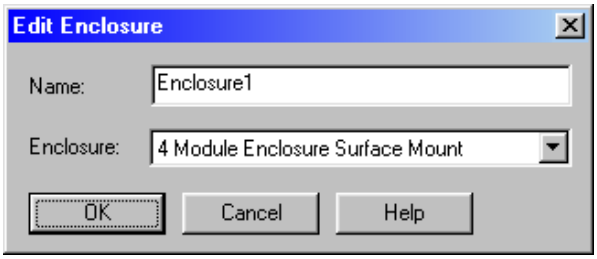
Enclosure Click ▼ and select the type of enclosure. Refer to page 79 for information on the different types of enclosures.

Click [**OK**] to add the enclosure to the Enclosures view.

Edit an Enclosure

During auto-assignment, LiteWare 3.8 adds any required enclosures to the selected location. Each added enclosure has a default name and is the default enclosure type (4-module enclosure surface mount). Use the Edit Enclosure function to change the enclosure name and/or the model or size of the enclosure.

To edit an enclosure, right-click the enclosure that you want to edit (a selected enclosure has a yellow border), and select **Edit** from the shortcut menu. The following dialog box is displayed.



Name Delete or type over the default name to enter a new name. Each enclosure in a job must have a unique name.

Enclosure To change the enclosure type, click ▼ and select a different model. Refer to page 79 for more information.

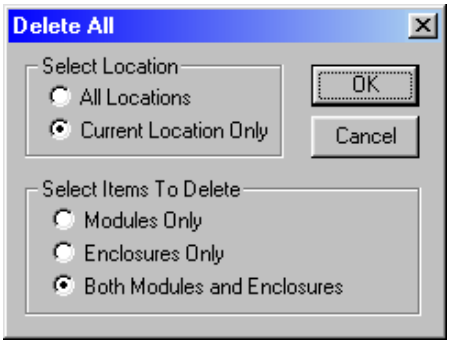
Click **[OK]** to change the enclosure.

Delete an Enclosure

To delete one enclosure from a job, right-click the enclosure that you want to delete (but do not click on a module). A selected enclosure has a yellow border. Select **Delete** from the shortcut menu to delete the enclosure. The enclosure is deleted and any modules that were in the enclosure are moved to unassigned positions in the Enclosures view (refer to "Module Functions" on page 83 for information on moving a module into an enclosure).

To select multiple enclosures to delete, hold down the **<Ctrl>** key and click on each enclosure. Then right-click and select **Delete** to delete all selected enclosures.

To delete all enclosures in a location or in all locations, click the **[Delete All]** button. The following dialog box is displayed.



Select Location Click **All Locations** to delete enclosures in all locations. Click **Current Location Only** to delete all enclosures in the current location only.

Select Items to Delete Click **Enclosures Only** to delete only the enclosures and leave the modules (unassigned). Click **Both Modules and Enclosures** to delete all enclosures and all modules.

Click **[OK]** to delete the selected items.

After deleting components, you will need to run auto-assign to reassign loads to enclosures and modules, or you will need to add enclosures and modules and assign loads manually. Refer to "Assign Loads (Auto-Assign)" on page 75, "Add a Module or Power Supply" on page 84, or "Edit a Module" on page 88.

NOTE ☞ If you delete an enclosure that has modules in it without deleting the modules, the modules become unassigned and are displayed outside an enclosure. You can delete the modules or move them to another enclosure. To move a module, click it (a selected module has a yellow border), hold down the mouse button, drag the module into the desired position in the other enclosure, then release the mouse button.

Print an Enclosure Schedule

An enclosure schedule is a report that contains a graphic of each enclosure and its modules and power supplies and lists the loads in each module.

To print an enclosure schedule for a location or locations, select the location of the enclosures for which you want to print a schedule (or select **All**), click on the toolbar, or select **Print** from the File menu. Click on the toolbar, or select **Print Preview** from the File menu, to view the report before printing it.

To print a schedule for one enclosure, right-click on the enclosure and select **Print Enclosure** from the shortcut menu.

When you select **Print**, a standard Windows Print dialog box is displayed. If necessary, select the printer and specify the page range and number of copies. Click **[OK]** to print the schedule.

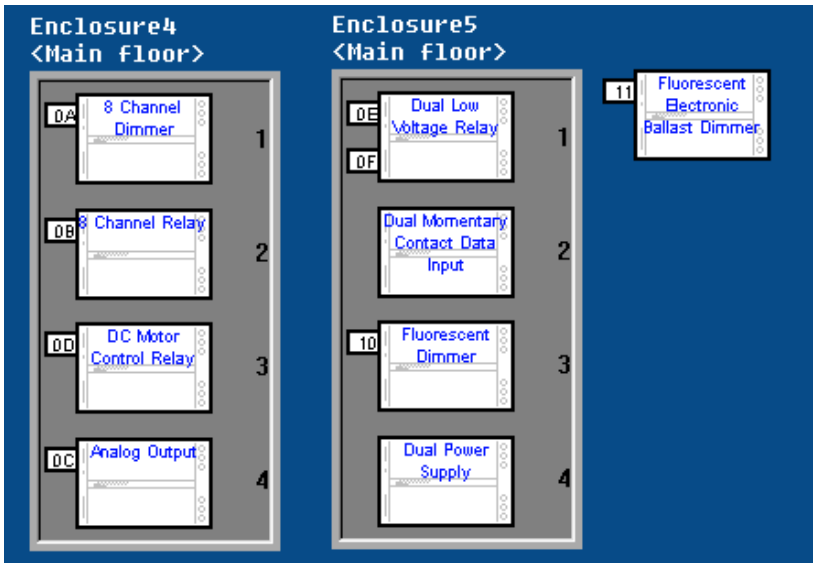
NOTE ☞ Modules that have more than eight channels (e.g., dual LV relay, etc.) are printed in a smaller font.

Module Functions

To view a list of modules types supported by LiteWare 3.8, right-click any module (a selected module has a yellow border), and select **Edit** from the shortcut menu. The Edit Module dialog box is displayed. At the "Available Modules" field, click to view the list of supported modules. Note that "Unknown Module" is included in the list. You can select "Unknown Module" to manually add a type of module (including a specialty or discontinued module) that is not listed. The unknown module is compatible with any load, regardless of its type, total wattage, or function.

All modules have a similar appearance in the Enclosures view. The type of module is identified by blue lettering on the module, as follows.

Several types of modules and a power supply are shown on the next page. Note that module addresses appear in small tabs on the left side of modules with assigned addresses.



The module on the right (module address 11) is unassigned. Modules that you add manually without assigning to an enclosure, modules that you remove from an enclosure, or modules left after an enclosure is deleted, are displayed in the Enclosures view as unassigned modules.

To move a module, click it (a selected module has a yellow border), hold down the mouse button, and drag the module into the desired position in the same or another enclosure, then release the mouse button.

NOTE ☞ It is an NEC code violation to place 277 volt modules in the same enclosure as 120 or 240 volt modules. LiteWare will not allow modules with different voltage ratings to be placed in the same enclosure.

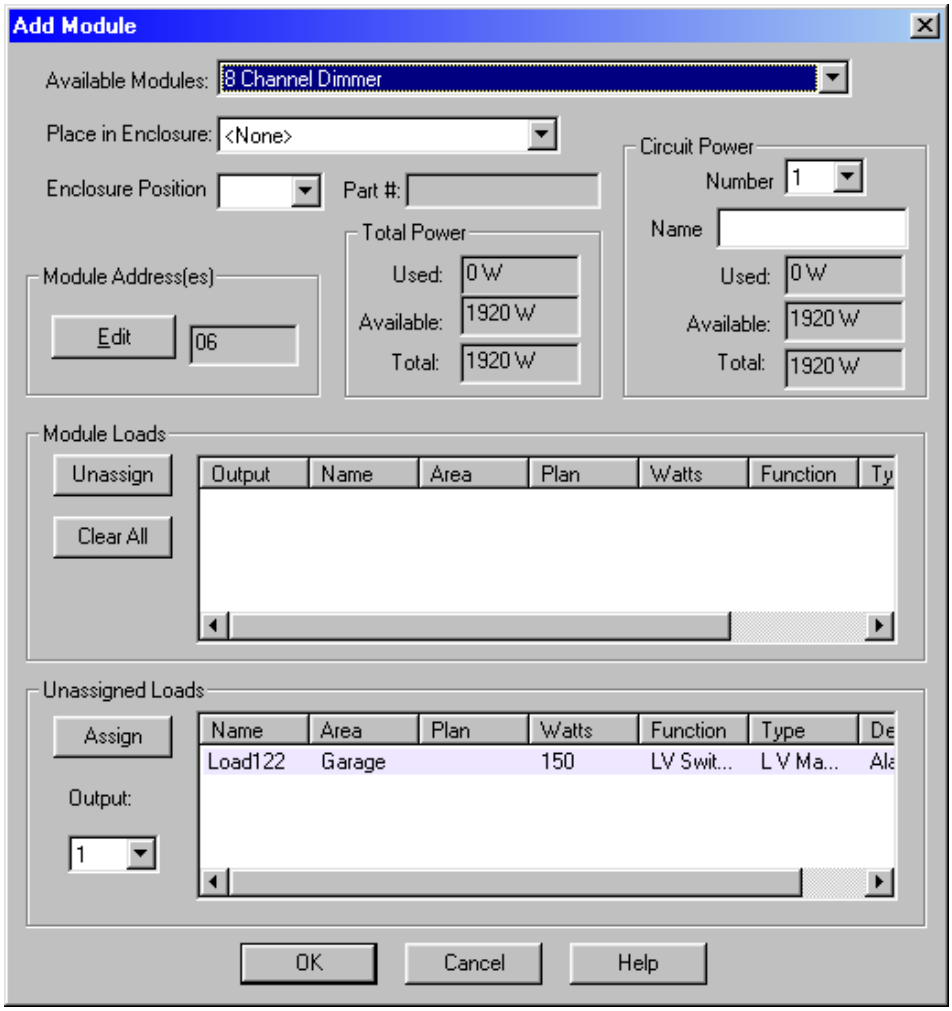
Add a Module or Power Supply

After LiteWare 3.8's auto-assignment, you may need to add modules that LiteWare 3.8 could not auto-assign (refer to "Manually Assign Loads" on page 72 for more information). You can also add modules to enclosures that you add manually, and you can remove any modules that you do not want to use and add new modules in their place. (You can also edit modules; refer to "Edit a Module" on page 88).

NOTE ☞ When you import a program file that was downloaded from a CCU, all modules are classified as "unknown modules," and all enclosures are classified as 4-module enclosures. The program identifies loads but cannot identify the load wattage. For this reason, the loads are classified as "zero watt loads." You must manually identify the modules and enclosures. You can either manually assign the loads or add the missing data to the loads list (see "Import 5000LC Program File" on page 223 or "Import Standard or Compact Program File" on page 224 for information on importing program files).

Do the following to add a module or power supply to the job:

Click the [**Add Module**] button, or right-click anywhere in the Enclosures view, and select **Add Module** from the shortcut menu. The following dialog box is displayed.



Available Modules

Click ▼ and select a type of module from the drop-down list. The list contains all modules that LiteWare 3.8 can identify. If you need to add a specialty module that is not on the list, select **Unknown Module** (see below).

Module types that cannot be auto-assigned in LiteWare 3.8 include the following:

Data input modules
A data input module has switch inputs rather than loads, and switch inputs cannot be auto-assigned. You can add a data input module to a job in either the Enclosures view or the Stations view. Then you configure the data input module and its inputs in the Stations view.

Older model 6-channel relays and dimmers
Older model fluorescent dimmers
LiteWare 3.8 only selects standard model dimmers and relays during auto-assignment. Older models are listed in the "Available Modules" drop-down list and must be selected manually.

Dual 20 amp dimmers
Dual 20 amp dimmer modules are used in heavy load areas or reduced noise situations because of their heavy-duty chokes and traces. This model is included in the "Available Modules" drop-down list and must be selected manually.

SatiLite keypad/module
A SatiLite keypad (see "SatiLite Keypad" on page 3) is classified as both a keypad and a module. For this reason, it is shown in both the Enclosures view and the Stations view. A SatiLite keypad's module address and keypad address are the same. You can auto-assign or manually assign a load to a SatiLite. The load to be assigned must be given the load type of "SatiLite" when you add the load to the loads list. A SatiLite keypad, which is mounted in a wall box, is shown in the Enclosures view as follows:

Unknown Module
If you need to add a module to the job that is not listed in the "Available Modules" drop-down list, select **Unknown Module**. You can assign any load to an "unknown module," regardless of its type, total wattage, or function.

Place in Enclosure Click and select the enclosure to which the module will be assigned.

Enclosure Position *This function is not yet available.* When a module is added it is automatically placed in the next available position in the enclosure (see "Auto-Assign Parameters" on page 76 for assignment order). To move a module, click it (a selected module has a yellow border), hold down the mouse button, and drag the module into the desired position in the enclosure, then release the mouse button.

Part # The part number of the selected module or power supply is displayed.

Module Address(es) A "module address" is used by the CCU to identify each module. LiteWare 3.8 assigns the address automatically (e.g., 01, 02, 03, 04, 05, etc.). The address is printed on each module to aid in identification.

NOTE ☞ If you move a module to a different enclosure, its address is NOT automatically reassigned. The original address can still be used, or it can be changed to more closely match the sequence in the new location. However, previously used address numbers cannot be reused. Refer to "Edit a Module" on page 88 for information on editing an address.

Total Power The power used, available, and total are displayed for reference only. This information is based on the module rating.

Circuit Power You can enter a name or comment for each line feed on the module, if applicable. Click ▼ and select the number of the line feed. Then, in the "Name" text box, enter a name or comment to identify the line feed. The name appears in the text box when the line feed is selected as well as on printed schedules.

For the selected line feed, the power used, available, and total are displayed for reference.

Module Loads The loads that you assign to the new module are listed in this box as you assign them (from the "Unassigned Loads" list, see below).

Unassigned Loads All loads from the load list that have not been assigned are listed in this box. To assign a load to the module, click the load to select it, then click [**Assign**], or double-click the load. Loads must be assigned one at a time. The load is added to the "Module Loads" list.

LiteWare 3.8 assigns the next available output address (e.g., 1, 2, 3, 4, 5, 6, 7, or 8 on an eight-output module), which is shown in the "Output" column of the "Module Loads" list, to each load as you add it to the module. If you want to assign a different output to a load, select the load, then, at the "Output" field, click ▼ and select the output number from the drop-down list.

NOTE ☞ An interlock (open/close) load takes up two adjacent module outputs, one for the open and one for the close. The 8-channel relay requires those adjacent outputs to be either 1 and 2, 3 and 4, 5 and 6, or 7 and 8. The interlocked relay module requires the adjacent outputs to be 1 and 2, 4 and 5, and 3 and 6.

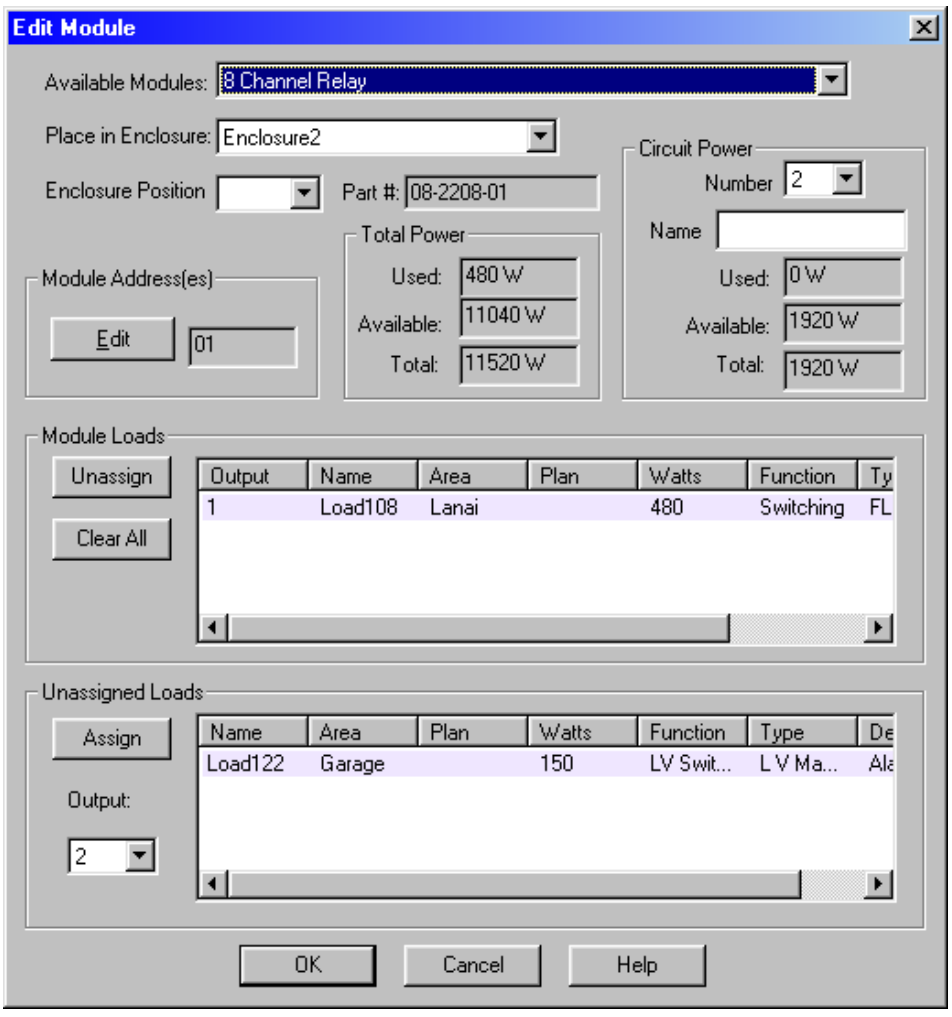
When you are finished, click [**OK**] to add the module to the job. Click 💾 on the toolbar, or select **Save** from the File menu to save the changes to the database.

Edit a Module

During auto-assignment, LiteWare 3.8 adds modules to enclosures and adds loads to the modules based on your load list. You can edit the assigned loads and other information for any module.

If you move a module to a different enclosure, the module address is NOT automatically reassigned. The original address can still be used, or you can use Edit to change the address to more closely match the sequence in the new location.

To edit a module, right-click any module (a selected module has a yellow border) and select **Edit** from the shortcut menu. The Edit Module dialog box is displayed.



Place in Enclosure You can click ▼ and select a new enclosure in which to place the module.

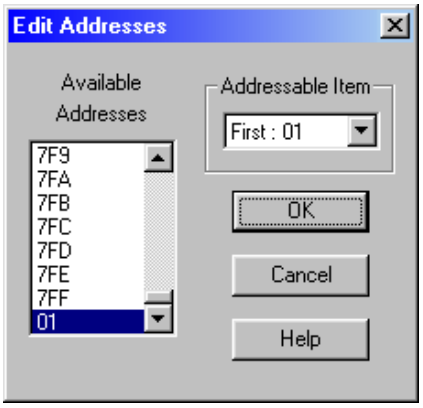
Enclosure Position *This function is not yet available*. To move a module, click it (a selected module has a yellow border), hold down the mouse button, and drag the

module into the desired position in the same or another enclosure, then release the mouse button.

Part # The module's part number is displayed.

Module Address(es) A "module address" is used by the CCU to identify each module. LiteWare 3.8 assigns the address automatically (e.g., 01, 02, 03, 04, 05, etc.). The address is printed on each module to aid in identification. If you move a module to a different enclosure, its address is NOT automatically reassigned. The original address can still be used, or it can be changed to more closely match the sequence in the new location. However, previously used address numbers cannot be reused.

To change a module address, click [**Edit**] and the following dialog box is displayed.



The address currently assigned to the module is highlighted in the "Available Addresses" list and shown in the "Addressable Item" box. To change the address, click a different address in the list and then click [OK].

NOTE ☞ The 5000LC supports three-digit keypad addresses from 0 to FFF but only supports physical addresses from 0 to FF. Keypad addresses are auto-assigned using addresses 01 through 99 before using hexadecimal addresses. The Standard and Compact CCUs support only keypad addresses 0 to FF.

If the module has more than one address (e.g., Dual Low Voltage Relay module), and you need to change both addresses, select a new address for the first item (displayed in the "Addressable Item" field). Then click ▼ at the "Addressable Item" field, select the second item from the drop-down list, and select a new address for it. Click [**OK**] when you are done.

Total Power The power used, available, and total are displayed for reference only. This information is based on the module rating.

Circuit Power

You can enter a name or comment for each line feed on the module, if applicable. Click and select the number of the line feed. Then, in the "Name" text box, enter a name or comment to identify the line feed. The name appears in the text box when the line feed is selected as well as on printed schedules.

For the selected line feed, the power used, available, and total are displayed for reference.

Module Loads

This box contains a list of loads that have been assigned to the module. Each load is assigned an output address (e.g., 1, 2, 3, 4, 5, 6, 7, or 8 on an eight-output module), which is shown in the "Output" column of the list. To unassign a load, click the load in the list to select it and click [**Unassign**]. To unassign all loads, click [**Clear All**].

Unassigned Loads

All loads from the load list that have not been assigned are listed in this box. To assign a load to the module, click the load to select it, then click [**Assign**], or double-click the load. Loads must be assigned one at a time. The load is added to the "Module Loads" list.

LiteWare 3.8 assigns the next available output to each load as you add it to the module. If you want to assign a different output to a load, select the load, then, at the "Output" field, click and select the output number from the drop-down list.

NOTE ☞ An interlock (open/close) load takes up two adjacent module outputs, one for the open and one for the close. The 8-channel relay requires those adjacent outputs to be either 1 and 2, 3 and 4, 5 and 6, or 7 and 8. The interlocked relay module requires the adjacent outputs to be 1 and 2, 4 and 5, and 3 and 6.

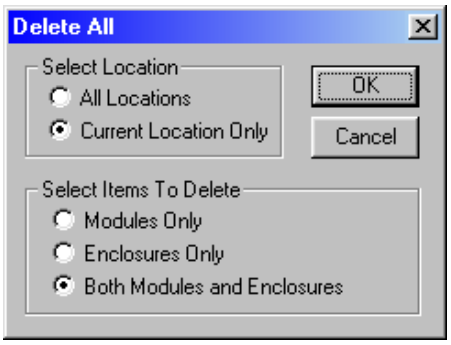
When you are finished, click [**OK**] to modify the module. Click on the toolbar, or select **Save** from the File menu to save the changes to the database.

Delete a Module

To delete a module or power supply, right-click on the module that you want to delete. A selected module has a yellow border. Select **Delete** from the shortcut menu to delete the module. The module is deleted and any loads that were assigned to it are placed on the unassigned load list.

To select multiple modules to delete, hold down the **<Ctrl>** key and click on each module. Then right-click and select **Delete** to delete all selected modules.

To delete all modules in a location or in all locations, click the **[Delete All]** button. The following dialog box is displayed.



Select Location Click **All Locations** to delete modules in all locations. Click **Current Location Only** to delete all modules in the current location only.

Select Items to Delete Click **Modules Only** to delete only the modules and leave the enclosures. Click **Both Modules and Enclosures** to delete all enclosures and all modules.

Click **[OK]** to delete the selected items.

After deleting components, you will need to run auto-assign to reassign loads to enclosures and modules, or you will need to add enclosures and modules and assign loads manually. Refer to “Assign Loads (Auto-Assign)” on page 75, “Add a Module or Power Supply” on page 84, or “Edit a Module” on page 88.

NOTE ☞ A SatiLite keypad and its enclosure are linked. If you delete one, you delete the other. If you add one, you add the other.

Notes

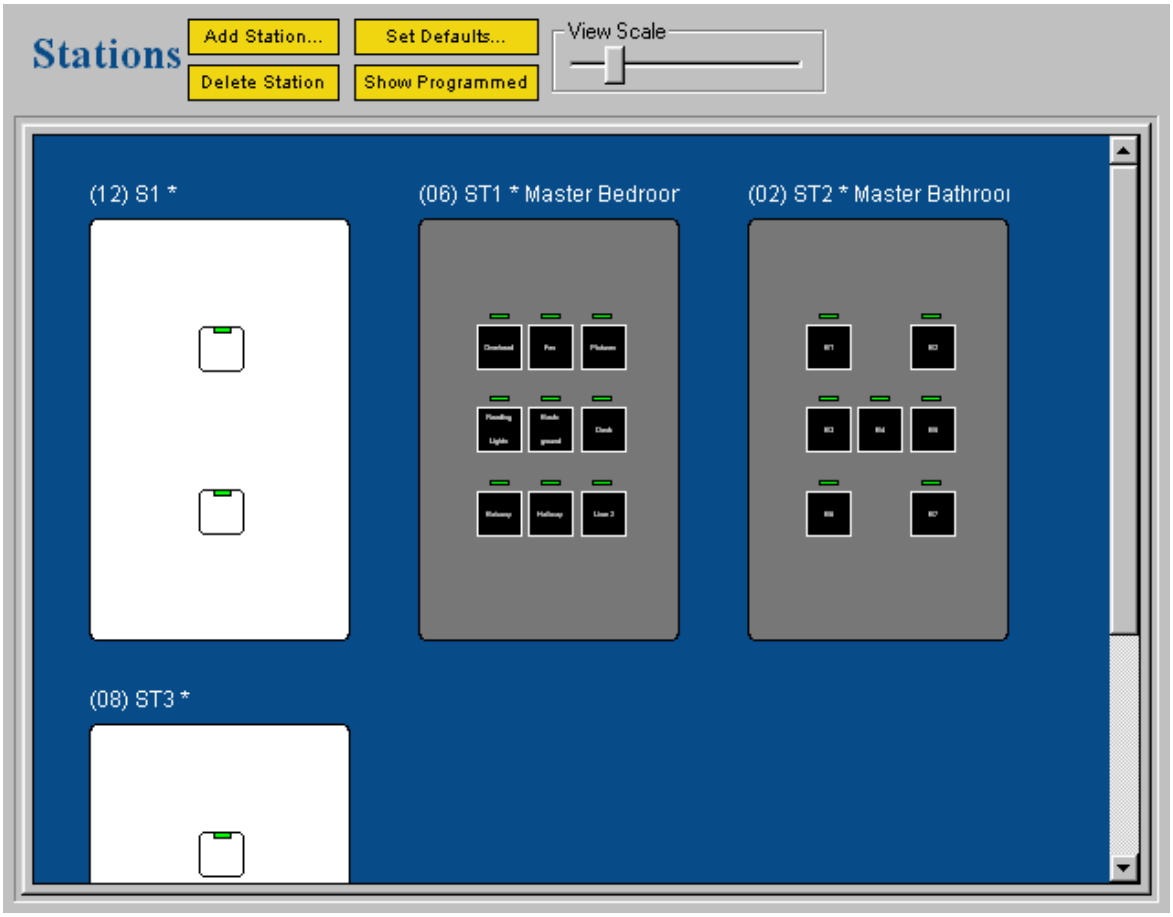
Stations 9

This chapter provides information on the functions performed in the Stations view. You use the Stations view to add keypads and to specify the following:

- Name of keypad
- Button and LED colors
- Engraving text on each button
- Function of each switch
- Load group(s) for each switch
- Function programming for each switch when required

Click **[Stations]** on the view selection bar and the Stations view is displayed.

The following illustration shows the Stations view with keypads added.



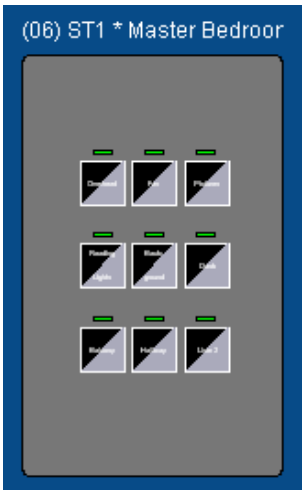
Sort Keypads

Keypads are arranged in the order they are added. When the database is saved and reopened, the keypads are sorted alphabetically. Data input modules are always placed at the end of the group. To sort the keypads numerically by address or alphabetically by name, right-click anywhere in the Stations view to display the shortcut menu. Then select **Sort by Address** or **Sort by Name**.

Select Keypads and Switches

To select a keypad, click in the keypad but not on a button (a selected keypad has a yellow border). To select a switch, click on the switch (a selected switch has a yellow border). When you select a keypad or button, you can view its settings in the Switch Summary (see next section). You can also right-click the selected switch or keypad and select **Edit**, or double-click on the switch or keypad, to display the Properties dialog box for the item.

Show Programmed Click the **[Show Programmed]** button to graphically display the buttons that have been programmed in each keypad. Programmed buttons are shaded diagonally, as shown below.



After you click it, the button changes to **[Hide Programmed]**; click it to return to the normal button graphics.

Switch Summary If the Switch Summary is not displayed, you can display it by selecting **Switch Summary** from the View menu. The Switch Summary lists all keypad switches for the currently selected job. Switches are grouped by keypad.

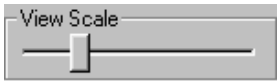
Switch Summary

Refresh

Switch Name	Engraving Text	ID	Function	Load Group	Comment	Button Color	Fill Color	LED Color
S1:G12:B2		12-2	*None*	*NoLoadGroup*		White	Black	Green
S1:G12:B8		12-8	*None*	*NoLoadGroup*		White	Black	Green
ST1:G06:B1	Overhead	06-1	On	L104		Black	White	Green
ST1:G06:B2	Fan	06-2	On	*NoLoadGroup*		Black	White	Green
ST1:G06:B3	Pictures	06-3	Scene	L103		Black	White	Green
ST1:G06:B4	Reading Lights	06-4	Dimmer	L104		Black	White	Green
ST1:G06:B5	Back-Iground	06-5	Scene	L103		Black	White	Green
ST1:G06:B6	Desk	06-6	Dimmer	NewLoadGroup		Black	White	Green
ST1:G06:B7	Balcony	06-7	On	NewLoadGroup2		Black	White	Green
ST1:G06:B8	Hallway	06-8	On	L103		Black	White	Green
ST1:G06:B9	User 2	06-9	Combination	*NoLoadGroup*		Black	White	Green
ST2:G02:B1	B1	02-1	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B3	B2	02-3	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B4	B3	02-4	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B5	B4	02-5	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B6	B5	02-6	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B7	B6	02-7	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B9	B7	02-9	*None*	*NoLoadGroup*		Black	White	Green
ST3:G08:B2		08-2	*None*	*NoLoadGroup*		White	Black	Green
ST3:G08:B8		08-8	*None*	*NoLoadGroup*		White	Black	Green

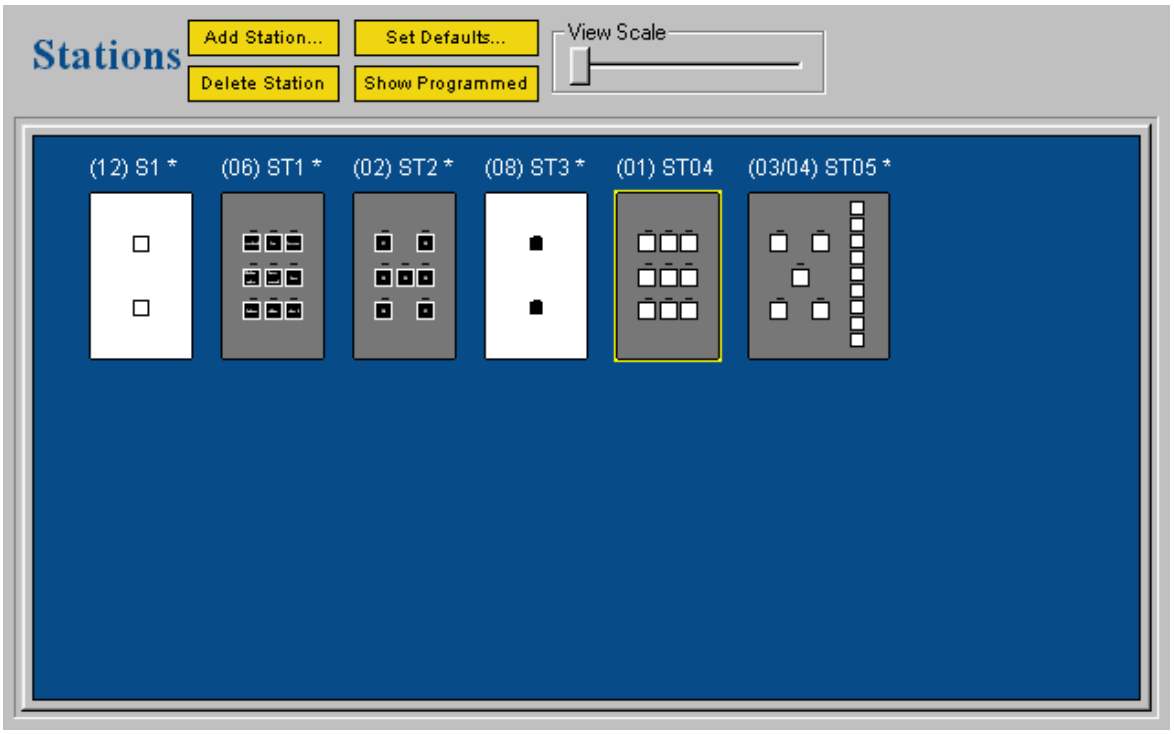
If you select a switch, the switch is highlighted in the Switch Summary list. If you select a keypad, all switches for that keypad are highlighted in the list.

View Scale



You can change the scale of magnification in the Stations view by sliding the horizontal bar left for a smaller scale and right for a larger scale. The new view scale is used until you change it again (even if you change views, change jobs, or exit and reopen LiteWare). Also, if you select a switch or keypad, and then change the view scale, the selected keypad remains visible at all times.

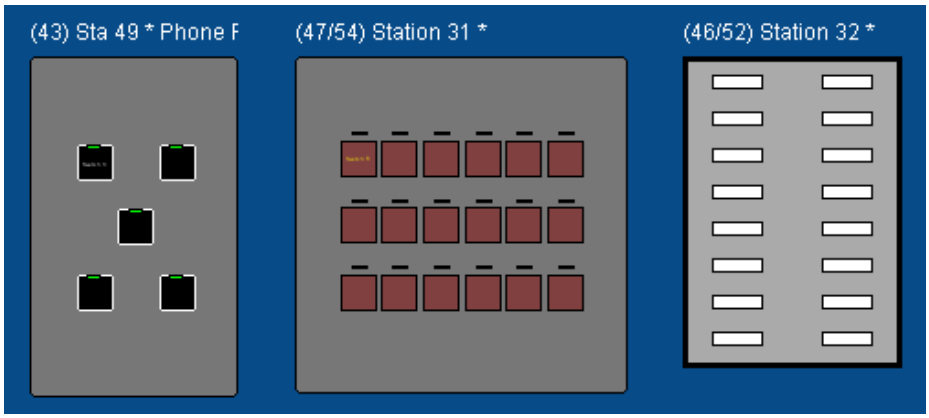
The following illustration shows the smallest scale view.



Data Input Modules

In addition to keypads, data input modules that you added in the Enclosures view or the Stations view are displayed. The “buttons” shown on the data input module directly correspond to the physical inputs on the module itself. The inputs are programmed in the same manner as the switches on a keypad.

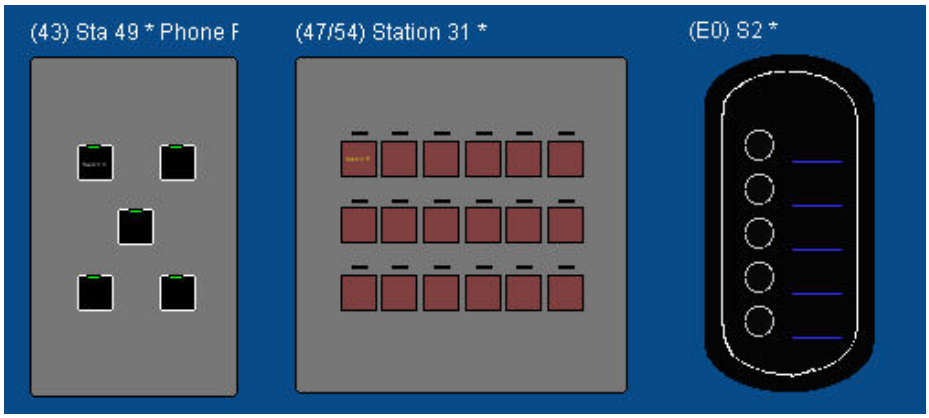
In the illustration below, a dual data input module is shown on the right.



LiteTouch Remote Controls

Any LiteTouch Remote Controls that you added (in the Stations view) are also displayed. The "buttons" shown on the remote control illustration directly correspond to the physical buttons on the remote control. You add a remote control just as you add a keypad, and the buttons are programmed in the same manner as the switches on a keypad.

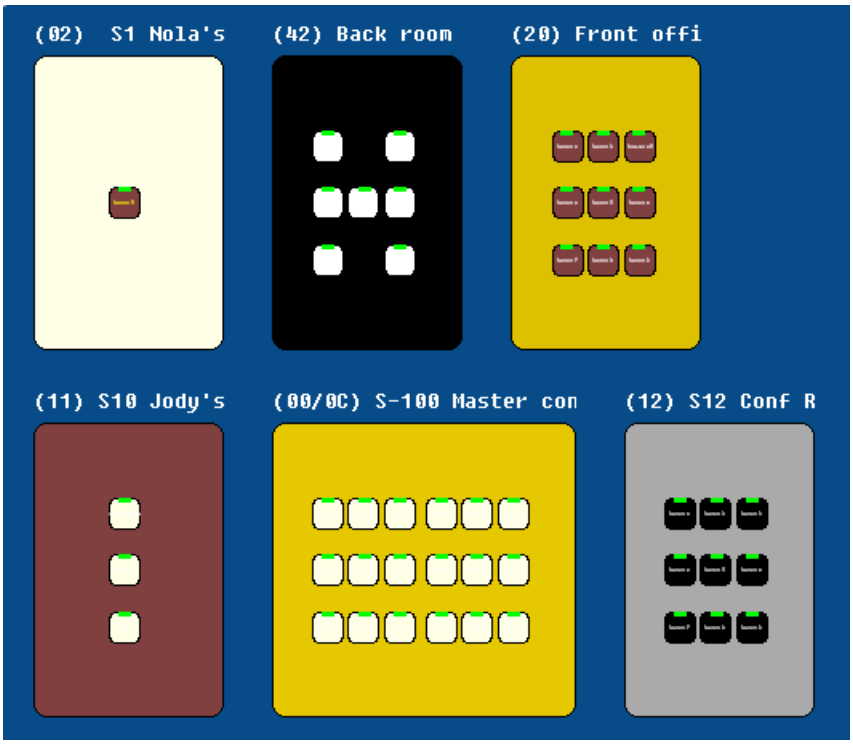
In the illustration below, a LiteTouch Remote Control is shown on the right.



Accurate Graphical Representation

The Stations view provides an accurate graphical representation of each keypad you add. The following illustration includes several variations that show the style of each keypad series, button colors, cover, LED, engraving text, and/or engraving icon. In addition, two-gang keypads are shown graphically, and each keypad is assigned an address automatically.

NOTE ☞ To save time, you should click [**Set Defaults**] and set up defaults for each type of keypad you will be using before adding keypads. Refer to "Set Defaults" below, for information.

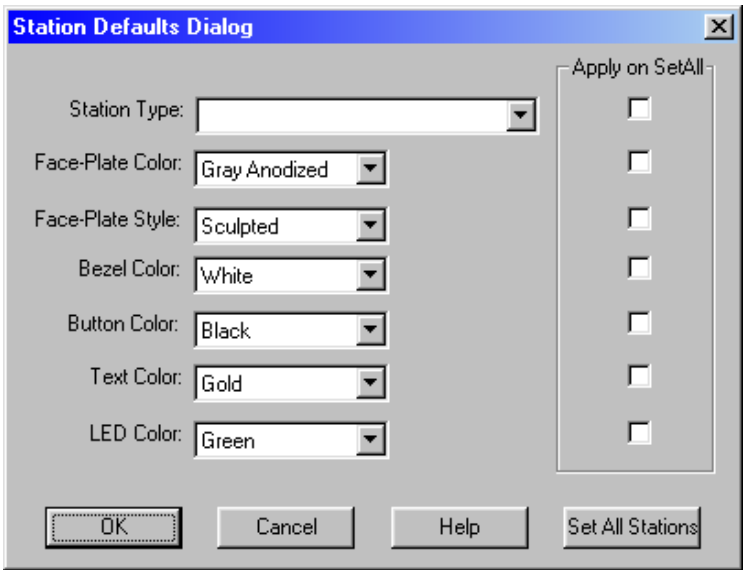


Set Defaults

Click the [**Set Defaults**] button to set up default colors for any or all of the keypad types you will be using. You can change the colors for individual keypads in the Station Properties dialog box when you add or edit a keypad. You can also change the color for individual buttons in the Switch Properties dialog box (refer to “Edit a Switch” on page 107).

NOTE ☞ You can also set keypad and button defaults, as well as load group defaults using the “Defaults” option (see “Set Up Job Defaults” on page 27).

The Station Defaults dialog box is displayed.



Station Type Click ▼ and select the keypad type for which you want to set defaults from the drop-down list. All keypads available in LiteWare 3.8 are listed (stock items).

Face-Plate Color Click ▼ and select a default color for the keypad's face-plate.

Face-Plate Style Click ▼ and select a default style for the keypad's face-plate.

Bezel Color Click ▼ and select a default color for the keypad's bezel.

Button Color Click ▼ and select a default color for the buttons.

Text Color Click ▼ and select a default color for the engraving text on the buttons.

LED Color Click ▼ and select a default color for the LEDs on the buttons.

Apply on SetAll You can apply any of the default selections to all of the keypad types in the job. Click the checkboxes to select each default you want to apply. Then click [**Set All Stations**] to apply each selected default to all keypads.

NOTE ☞ If you change all keypads in the job to the same keypad type by selecting the "Apply on SetAll" checkbox for the "Station Type" option, a prompt appears to warn you that some button programming may be lost if you change any keypad types. Click [**Yes**] to continue or [**No**] if you do not want to change all keypads to the same type.

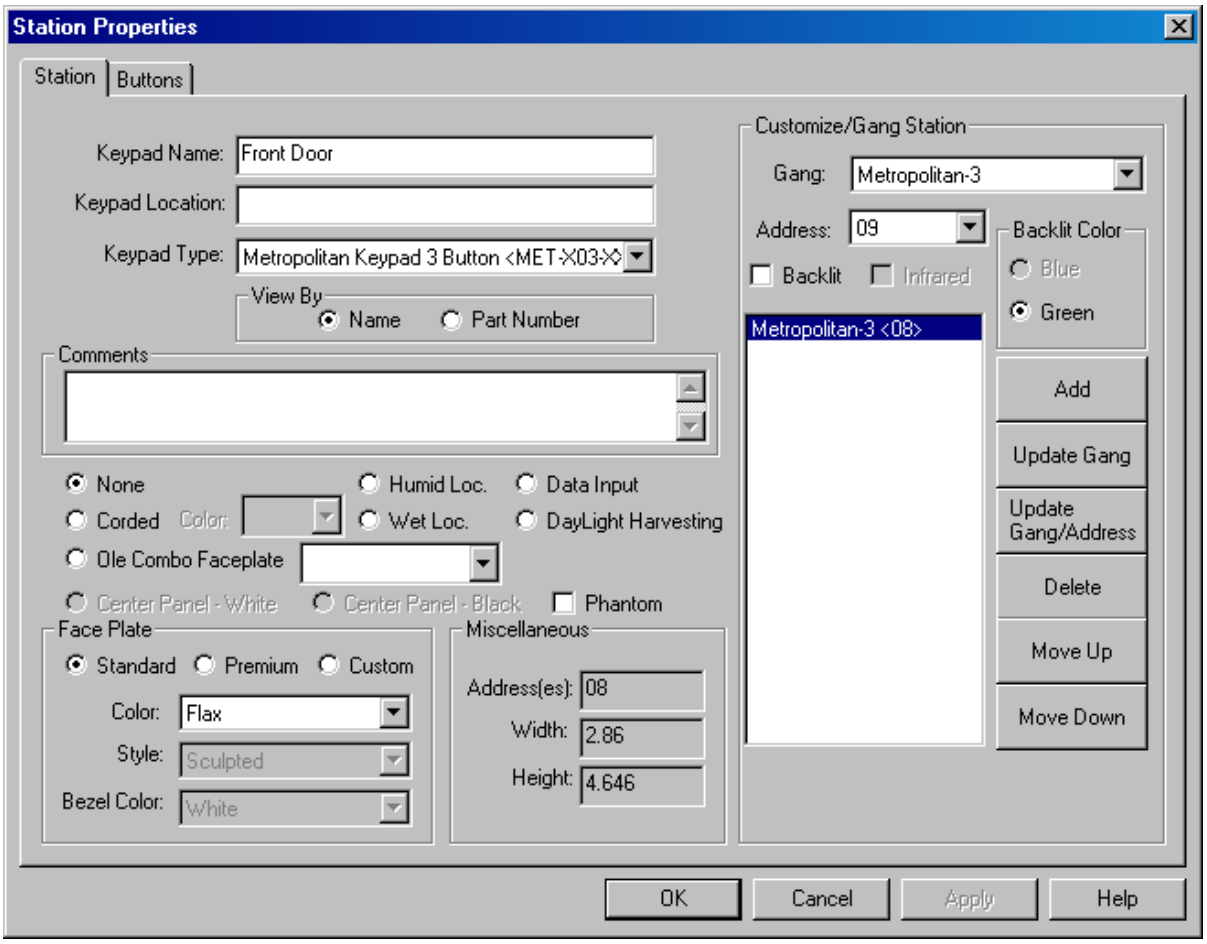
Click [**OK**] to save the keypad defaults and exit the dialog box.

Add a Keypad

To add a keypad, click the [**Add Station**] button, or right-click anywhere in the Stations view, and select **Add** from the shortcut menu. The Station Properties dialog box is displayed. It contains two tabs, one to configure the keypad and one to configure the buttons, as described in the following sections.

Station Tab

The options in the Station tab are used to configure the keypad. If it is not already selected, click the **Station** tab.



Keypad # Enter a number or identifier for the keypad. This number is used to identify the keypad on the keypad design schedule and is listed above the keypad in the Stations view.

Keypad Location Enter the location in which the keypad will be placed. This is listed on the keypad design schedule and appears above the keypad in the Stations view (if the scale is large enough to show it).

Keypad Type Click and select the type of keypad from the drop-down list. You can choose to list the keypad types by name or part number (see below) to make it easier to find a specific type. For two-gang keypads, select a keypad model with 12, 15, or 18 buttons. You also select a LiteTouch Remote Control from this list.

View By Select an option to sort the list of keypad types by name or by part number.

Comments (Optional) You can describe the keypad's configuration and add any special instructions or other comments, as required, in this box.

NOTE ☞ After you select a keypad type, options that are not applicable to the selected keypad are greyed.

None Select **[None]** if the keypad has none of the features in this section (corded, humid location, wet location, data input, and so on).

Corded Select this option if the keypad has a corded remote, and the word "corded" is shown on the keypad.

Olé Combo Face-plate Select this option if the keypad will be a LiteTouch keypad combined with an Elan Olé touch panel. Then select the face-plate color from the drop-down list.

Center Panel - White
Center Panel - Black Select whether you want the center panel of the keypad to be white or black.

Phantom Select this option if you want the keypad to be a "phantom" that does not appear in the billing list but can be programmed and used as a regular station for testing purposes.

Humid Location Select this option if the keypad will be placed in a humid location, and the words "humid location" are shown on the keypad.

Wet Location Select this option if the keypad will be placed in a wet location, and the words "wet location" are shown on the keypad.

Data Input Select this option if the keypad will be a data input keypad.

NOTE ☞ If this option is selected for a Coastal or Metropolitan keypad, the data input gang can use any of the 256 available addresses. If this option is selected for

an S, H, or E series keypad, the data input gang must have the next higher address as the S, H, or E series keypad.

Daylight Harvesting Select this option if the keypad will have a Daylight Harvesting light sensor.

NOTE ☞ The DayLight Harvesting option is available only on the 5000LC CCU. If you select the Daylight Harvesting option, a line item for a light sensor will be added to the billing list.

Face-plate

Standard, Premium, Custom Choose whether you want to select from "standard," "premium," or "custom" colors, styles, and bezel colors for the keypad face-plate. The options available are determined by the keypad type selected.

Color Click ▼ and select the face-plate finish from the drop-down list.

Style Click ▼ and select the face-plate style from the drop-down list.

Bezel Color (Available on Framed S and H series only) Click ▼ and select the bezel color from the drop-down list.

Miscellaneous

Address(es) The address for the keypad is shown. Addresses are assigned by gang. If there are multiple gangs, an address is shown for each gang.

Width The width of the keypad's face-plate is shown.

Height The height of the keypad's face-plate is shown.

Customize Gang Station

Gang If you are adding a gang to the keypad, click ▼ and select the type of gang.

NOTE ☞ If a keypad's number of gangs results in the keypad becoming a "custom order," the keypad type is automatically changed to "Custom Keypad (Quote)." The keypad is added to the bill of materials as a custom keypad for which the price will need to be quoted. Custom options are listed in the "Keypad Type" drop-down list.

Address When you add a gang to a keypad, LiteWare 3.8 automatically assigns it the next available address. The address shown in the box applies to the next gang to be added. Each gang must have a unique address, with up to

256 addresses available for one CCU. LiteWare 3.8 does not allow an address to be assigned to two keypads. If a keypad is deleted or assigned a new address, the old address is returned to the list and automatically assigned to the next keypad added. LiteTouch Remote Controls can only be assigned addresses E0 to E9.

NOTE ☞ The 5000LC supports three-digit keypad addresses from 0 to FFF but only supports physical addresses from 0 to FF. Keypad addresses are auto-assigned using addresses 01 through 99 before using hexadecimal addresses. The Standard and Compact CCUs support only keypad addresses 0 to FF.

Backlit Select this option if the gang to be added has the "backlit" feature.

NOTE ☞ Selecting this option does not have an effect on the power supply calculation. If you want LiteWare to correctly calculate power supplies for Metropolitan backlit keypads, you must select a Metropolitan series keypad from the "Station Type" drop-down list in Job Default Properties (see "Set Up Job Defaults" on page 27) before auto-assigning loads in the Enclosure view.

Backlit Color If you selected the "Backlit" option, above, select whether you want the backlit color to be blue or green.

Infrared Select this option if the gang to be added has the "infrared" feature.

Add Click [**Add**] to add a gang to the current keypad with the keypad series, address, and features selected above.

Update Gang If you need to change the information for an existing gang, select the gang (click it in the list), change the information at the top of the "Gangs" sections, then click [**Update Gang**].

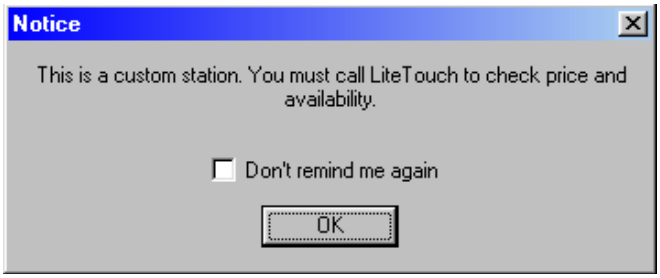
Update Gang/Address To change the information for all gangs in the list, click [**Update Gang/Address**].

Delete To delete a gang from the keypad, select the gang to be deleted (click it in the list), and click [**Delete**].

Move Up
Move Down If a keypad has multiple gangs, it is assumed that the gangs will be installed in the keypad box from left to right in the order they are listed. To change the order of the gangs in the list, click the gang to be moved and click [**Move Up**] or [**Move Down**].

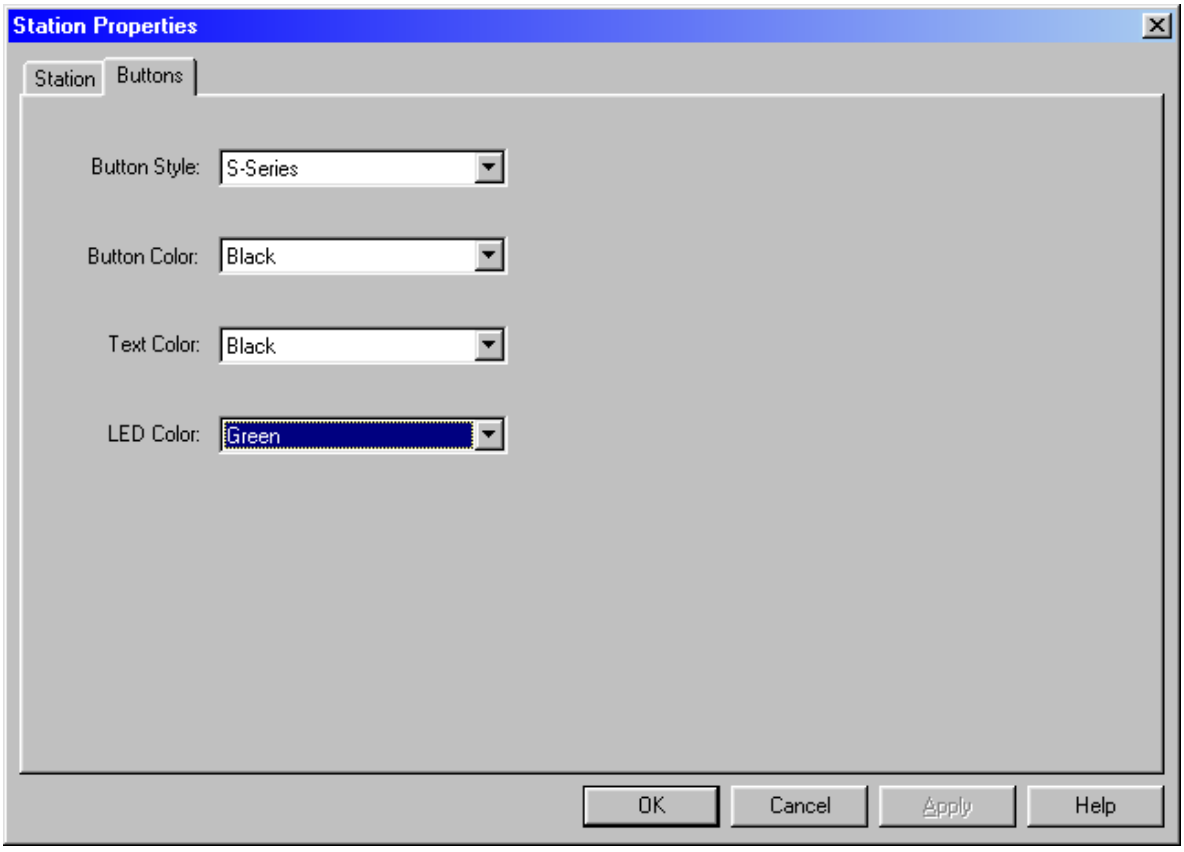
Custom Keypad If you set up a custom keypad, when you exit the Station tab, a message is displayed to remind you that you must contact LiteTouch for price and

availability. Click [OK] to close the notice. If you don't want the notice displayed in the future, select **Don't remind me again** before you click [OK].



Buttons Tab

Click the **Buttons** tab to configure the keypad buttons' style, colors, and default function. You can edit a switch, if necessary, to change these options as well as to add engraving text information, set up function programming, and assign loads (refer to "Edit a Switch" on page 107).



Use the following options to specify the style and colors of the keypad's buttons. The colors and styles you select are illustrated graphically in the Stations view for easy reference.

Button Style This is the default button style for the keypad. Click and select a different style if necessary. Only compatible button styles are listed. You can select a different button style for each button in the Switch Properties dialog box. Refer to "Edit a Switch" on page 107 for information. If you select different button styles on a keypad, this field shows "Mixed."

Button Color Click and select a default color for the buttons. You can select a different color for each button in the Switch Properties dialog box. Refer to "Edit a Switch" on page 107 for information. If you select different button colors on a keypad, this field shows "Mixed."

Text Color Click and select the default color for the engraving text on the buttons. You can select a different color for each button in the Switch Properties dialog box. Refer to "Edit a Switch" on page 107 for information. If you select different text colors on a keypad, this field shows "Mixed."

LED Color Click and select the default color for the LEDs on the buttons. You can select a different color for each button in the Switch Properties dialog box. Refer to "Edit a Switch" on page 107 for information. If you select different LED colors on a keypad, this field shows "Mixed."

Click **[OK]** to save the new keypad configuration and exit the dialog box. Click on the toolbar, or select **Save** from the File menu to save the changes to the database.

Edit a Keypad

To edit a keypad, right-click on the keypad that you want to edit (a selected keypad has a yellow border), and select **Edit** from the shortcut menu, or double-click the keypad. The Station Properties dialog box is displayed. You can edit any option that is not dimmed. Refer to "Add a Keypad" on page 100 for information on the options.

Copy a Keypad

If you want to add a keypad that is similar to an existing keypad, you can make a copy of the existing keypad to use as a starting point to create the new keypad.

Right-click on the keypad to be copied and select **Copy** from the shortcut menu. Right-click outside the keypad in the blue background area and select **Paste** from the shortcut menu. The new keypad is pasted at the end of the existing keypads.

The new keypad is assigned the next unique address and given the same name as the copied keypad with the words “copy of” added. The new keypad’s switches have the same programming (switch function, load groups, etc.) as the original keypad’s switches.

Edit the new keypad and its switches as required.

Delete a Keypad

To delete a keypad, click the keypad (a selected keypad has a yellow border). Click the **[Delete Station]** button, or right-click the keypad and select **Delete** from the shortcut menu. The following prompt is displayed.

Click **[Yes]** to delete the keypad or **[No]** if you do not want the keypad deleted.

The address used by the keypad becomes available and is automatically assigned to the next keypad added.

To select multiple keypads for deletion, press and hold the **<Ctrl>** key and click each keypad that you want to delete. All selected keypads are outlined with yellow. Click the **[Delete Station]** button, or right-click and select **Delete** from the shortcut menu. A message asks if you really want to delete the selected items (the number of items is shown). Click **[Yes]** to delete the keypads.

Save Keypad as .JPG Image

You can save an image of a keypad as a *.jpg* file. You might want to do this to send the image of a custom keypad to the customer for design approval, to use the image as a CAD drawing, or to print it for visual confirmation of a keypad during construction. You could also e-mail the file to the factory to build a single keypad (rather than sending the entire program file).

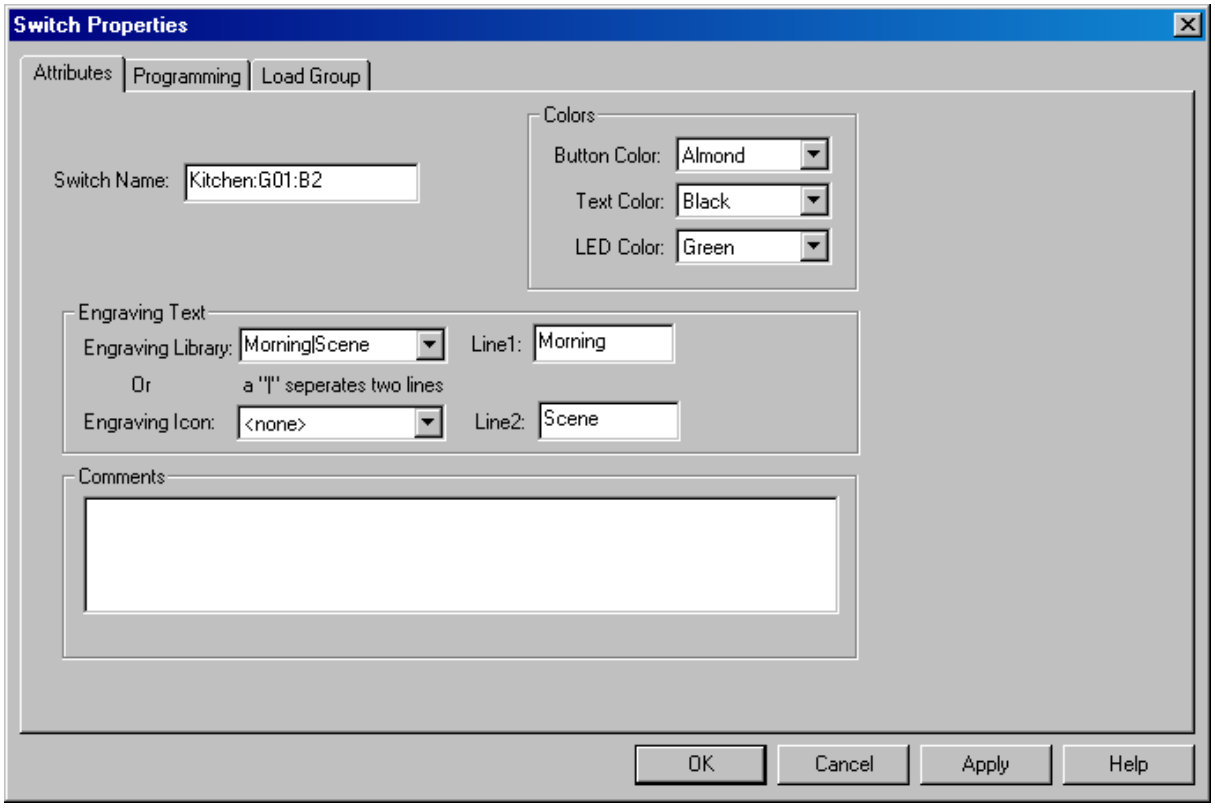
To save a keypad image, right-click on the keypad that you want to save (a selected keypad has a yellow border), and select **Save to JPG** from the shortcut menu. The file is saved to the *Projects* folder (the path cannot be changed). You can use the settings in Job Default Properties to adjust the size and compression of the images (refer to "JPG Settings Tab" on page 29).

Edit a Switch

When you add a keypad, you specify a default style (type), colors, and function for the keypad's buttons (switches). You can change an individual button's type, colors, or function, as well as set up any of the following:

- Change the switch name
- Add button engraving text or an icon
- Edit button style and colors
- Specify the switch function and complete any required programming
- Create and assign a load group to the switch

To edit a button/switch, right-click on the button (a selected button has a yellow border), and select **Edit** from the shortcut menu, or double-click the button. The Switch Properties dialog box is displayed.



Select options in each tab to configure the switch, as described in the following sections. Click [**Apply**] at any time to save any changes you have made. When you have finished editing the switch, click [**OK**] to save the information and exit the dialog box.

NOTE ☞ You can program one button on SatiLite two-button keypads. A one-button SatiLite keypad contains only a simple dimmer switch and is not programmable. On a two-button SatiLite keypad, the upper button is a simple dimmer switch and the lower button is programmable.

Attributes Tab

Click the **Attributes** tab to change the switch's name or colors and to specify the engraving text or icon.

Switch Name The default button name consists of the keypad number (e.g., S34, ST34, etc.), the gang number (e.g., G01, G02, etc.), and a simple sequential button number (e.g., B1, B2, B3, etc.) The system counts buttons on a keypad from left to right beginning at the top. For example, "S34:G01:B1" would

be the first button on the first gang on keypad 34. Type over the default name if you want to change it.

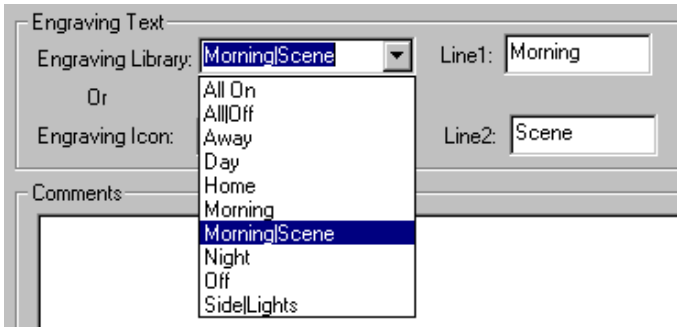
Engraving Text You can enter text to be engraved on the button, select text from the engraving library, or select an engraving icon.

To enter new text, type it in the "Line1" text box. If the label requires two lines, type the second line in the "Line2" text box. You can enter up to eight characters for Metropolitan, non-backlit, "E" and "S" series keypads on each of two lines. Metropolitan backlit keypads are limited to 5 characters per line. Up to 10 characters may be used for Coastal and "H" series keypads on a single line. Check your entry for accuracy.

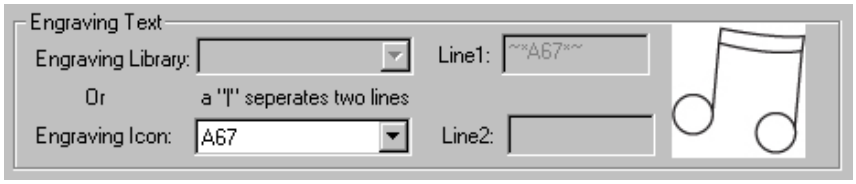
NOTE ☞ If the keypad type selected is a LiteTouch 5-button remote, "Line1" and "Line2" are replaced by a "Switch Label" selector. You can select any one of the pre-made button labels included with the LiteTouch 5-button remote.

Engraving Library When you enter engraving text for a button (see above), the text is added to the engraving library when you click **[OK]** or **[Apply]**, or when you click a different tab in Switch Properties. The engraving library contains all engraving text entered in all projects in LiteWare, so text from any project is available to be used in any other project.

To select engraving text for the button from the engraving library, click ▼ and select the text from the drop-down list. If the text will appear on two lines on the button, the lines are separated with a vertical bar (|).



Engraving Icon You can have an icon engraved on the button instead of text. Click ▼ and select an icon from the drop-down list. When you select an icon, it is displayed on the right.



Button Color The default color for the keypad's buttons is shown. To change the button's color, click and select a different color from the drop-down list.

Text Color The default text color for the keypad's buttons is shown. To change the button's text color, click and select a color from the drop-down list.

LED Color The default LED color for the keypad's buttons is shown. To change the button's LED color, click and select a color from the drop-down list.

Comments (Optional) You can add any special instructions or other comments, as required, in this box. The comment is displayed in this dialog box and on the Station Design Schedule.

Programming Tab

Click the **Programming** tab to select the function of the switch. The function determines the action performed when a button is pressed or a data input device is activated.

The default function for the keypad's buttons is shown in the "Function" field (if you selected one). To change the function for the selected button, click and select a different function from the drop-down list. The options available in the Programming tab vary with the function selected. Most functions require minimal configuration, however some, such as "User," require special programming.

NOTE ☞ Most functions require that you assign a load group to the switch. Use the Load Group tab to create or edit load groups. Refer to "Load Group Tab" on page 136 for information.

The following sections describe each available function and the parameters used to define it. Many functions are available only on the 5000LC or only on the Standard/Compact CCU and are so indicated in the headings. The functions are listed in alphabetical order.

Advanced Lower (5000LC)

The Advanced Lower function lowers the intensity of the last load group to be selected on the keypad. It initiates a "StartRampToMin()" command when the button is pressed and a "StopRamp()" when the button is released. This function is paired with the Advanced Raise function.

When you select the **Advanced Lower** function, no options are displayed in the tab since the function applies to the last selected load group.

Advanced Raise (5000LC)

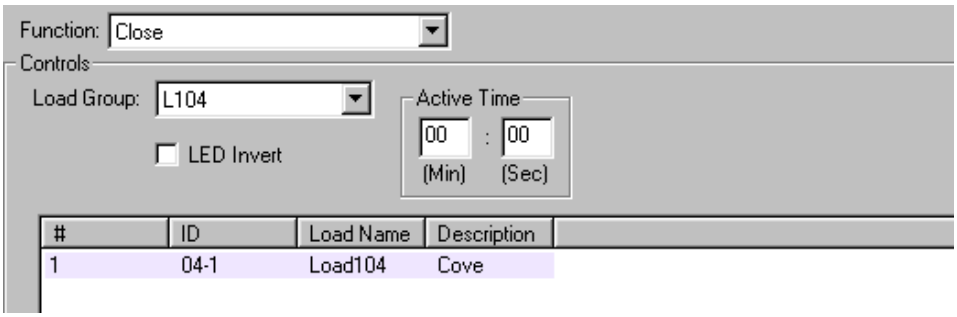
The Advanced Raise function raises the intensity of the last load group to be selected on the keypad. It initiates a "StartRampToMax()" command when the button is pressed and a "StopRamp()" when the button is released. This function is paired with the Advanced Lower function.

When you select the **Advanced Raise** function, no options are displayed since the function applies to the last selected load group.

Close (5000LC)

The Close function sets the module outputs to "close," waits a specified period of time, then sets the outputs to "stop." If the button is pressed during the wait period, the module outputs are placed in the stop state. This function is paired with the Open function.

When you select the **Close** function, the following options are displayed in the Programming tab.



Load Group Click and select a load group from the drop-down list. Use the Load Group tab to create or edit load groups (refer to page 136 for information)

LED Invert Select this option if you want to reverse the LED action for the function.

Active Time Enter the duration that the load group should remain in the "closed" position. Enter the time in minutes and seconds. For example, enter 02 and 15 for two minutes and 15 seconds.

Combination (5000LC)

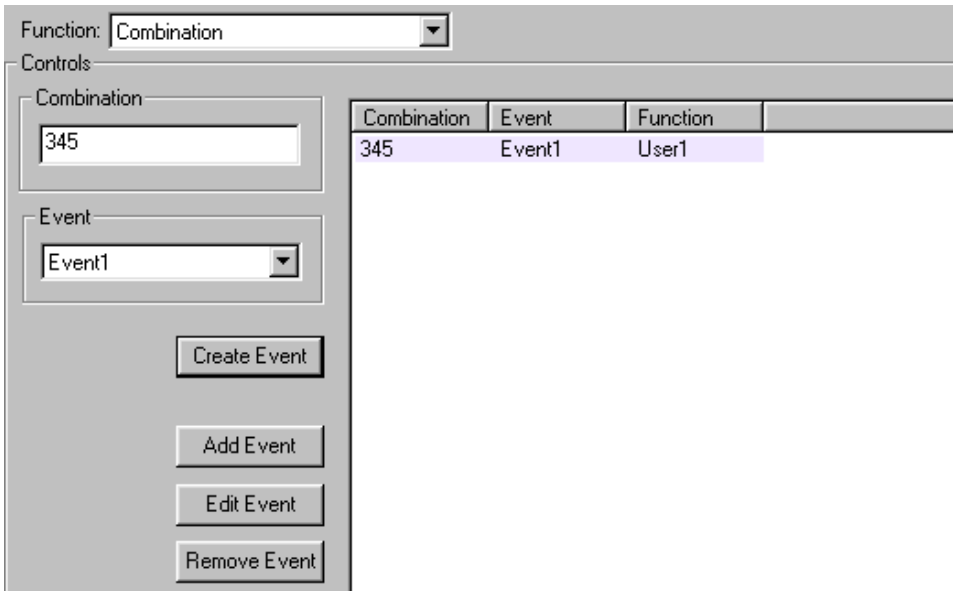
A Combination function uses a security code as a trigger to start a specified user program. First, the user presses the button to which the combination function is assigned. This indicates that a security code is expected. The security code must be entered by the user to execute the user program.

On a nine-button keypad, the easiest keypad on which to enter a combination code, the keys simulate a typical number pad. Number one is located at the top, left corner of the keypad. Keys are numbered consecutively to the right and then from left to right on the next rows (in the same manner as a telephone keypad).

To enter the combination on a keypad with fewer than nine buttons, the user must have some understanding of the absolute position of the buttons (see the tables on the next page). For example, on a five-button "S" series keypad, the button positions are numbered 1, 3, 5, 7, and 9, so the user must know that to enter a 3 in the code, for example, they would press the second button. On a two-button keypad the button positions are 2 and 8, so the user would press the first button to enter a "2."

If the user presses the wrong key, the combination function is aborted and must be restarted. The LED remains on until a valid code is selected or an invalid number is entered.

When you select the **Combination** function, the following options are displayed in the Programming tab.



Combination Type the security code that the user must enter to execute the user program. Combination codes must be entered using the absolute position of each button. For example, on a nine-button "S" series keypad, you can use a code with any of the digits 1 through 9; on a five-button keypad you can use the digits 1, 3, 5, 7, and 9; on a two-button keypad you can use only the digits 2 and 8, and so on.

The tables below identify the switch positions for each possible variation.

"S" Series Keypad	
Number of Buttons	**Button Position**
1	5
2	2, 8
3	2, 5, 8
4	1, 3, 7, 9
5	1, 3, 5, 7, 9
6	1, 3, 4, 6, 7, 9
7	1, 3, 4, 5, 6, 7, 9
8	1, 2, 3, 4, 6, 7, 8, 9
9	1, 2, 3, 4, 5, 6, 7, 8, 9

"H" Series Keypad 1–5 Button	
Number of Buttons	**Button Position**
1	6
2	4, 6
3	2, 4, 6
4	2, 4, 6, 8
5	2, 4, 6, 8, 9

"H" Series Keypad 6–9 Button	
Number of Buttons	**Button Position**
6	3, 4, 5, 6, 7, 8
7	3, 4, 5, 6, 7, 8, 9
8	1, 2, 3, 4, 5, 6, 7, 8
9	1, 2, 3, 4, 5, 6, 7, 8, 9

"E" Series Keypad 1–4 Button (Single Gang)	
Number of Buttons	**Button Position**
1	1
2	1, 3
3	1, 2, 3
4	1, 2, 3, 4

"E" Series Keypad 5–8 Button (Dual Gang)	
Number of Buttons	**Button Position**
5	1, 2, 3, 4, 5
6	1, 2, 3, 4, 5, 6
7	1, 2, 3, 4, 5, 6, 7
8	1, 2, 3, 4, 5, 6, 7, 8

No two combination codes can be the same or begin with the same series of digits. For example, if you created codes "1 2 3" and "1 2 3 4," "1 2 3" would execute its user program before "1 2 3 4" could be entered.

NOTE ☞ If you are using a combination code on a multi-gang keypad, note that combination codes cannot cross gang boundaries.

Event Click ▼ and select the user event for the combination. All events that you have created are listed. Refer to "**[Create Event]**" below for information on creating a user event.

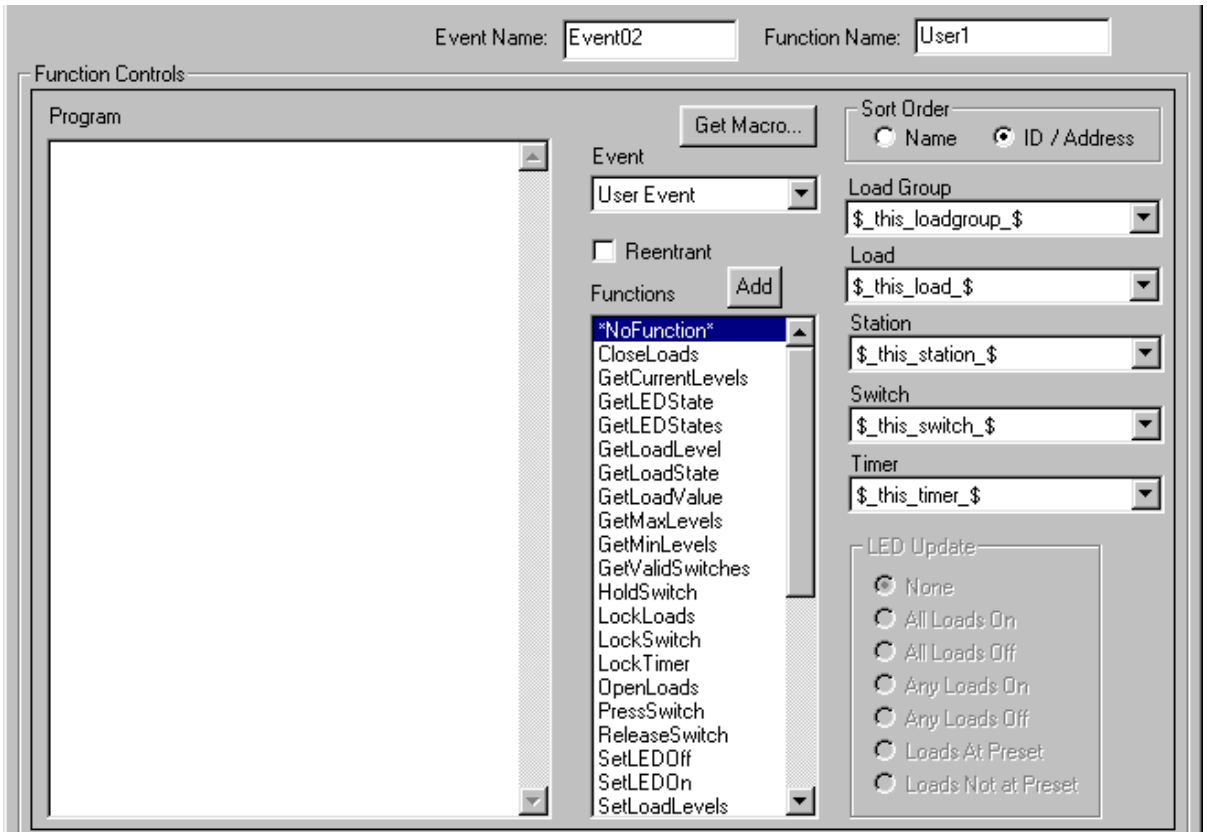
[Add Event] Click **[Add Event]** to add the selected user event with its combination code to the function.

[Edit Event] In the event list, click the user event that you want to edit, and then click **[Edit Event]**. The Combination Event dialog box is displayed for the selected user event. Refer to "**[Create Event]**," below for information on the options in the dialog box.

[Remove Event] Click a user event in the list, and then click **[Remove Event]** to remove a user event and combination code from the function. The user event is not deleted and remains available to be selected again.

[Create Event] A user event triggers a program that contains the instructions executed when a combination code is entered at a "Combination" switch. A user event's program may be as simple or as complex as you require and is capable of executing any action (or series of actions) supported by the CCU. Click **[Create Event]** to create a user event's user program.

The following dialog box is displayed.



User events are added to the "Event" drop-down list (in the Programming tab) for the Combination function as they are created.

Event Name
Enter a name to describe the event.

Function Name
The user program that you create can also be used as a User function (see "User (5000LC)" on page 133). Enter a name for the user function. The new function will have the same program as the event, but you will be able to modify it as a User function.

Event
User event is the only type of event available.

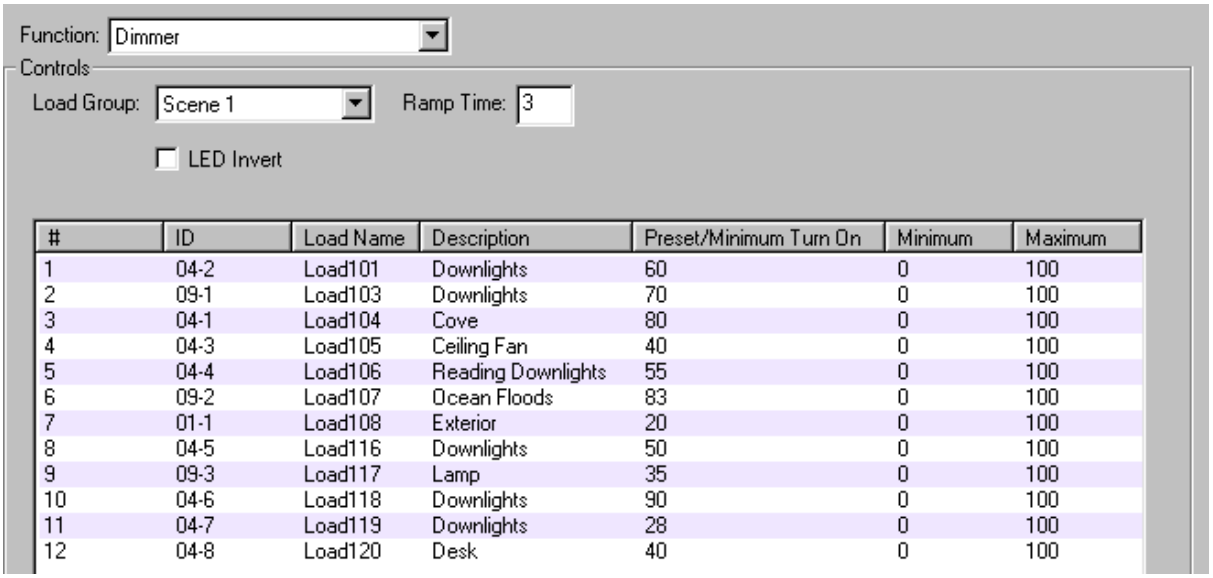
The remaining options are used to create the user program. The program is then displayed in the Program box. For instructions, refer to Chapter 12, "5000LC Programming" beginning on page 181.

The **[Get Macro]** button is used to import a macro program. A macro is a file containing a pre-defined program. For information on macros, refer to Chapter 13, "5000LC Macros" on page 205.

Dimmer (5000LC)

When a dimmer button is pressed and held, loads in the load group assigned to the button begin ramping up and down until the button is released or for approximately three ramp cycles. When the button is released or the third ramp cycle is reached, the loads stop ramping at their current level. When the load group defined for the dimmer function is turned on, it starts with the last setting and ramps down. If all loads within the group maintain the same percentage of difference between minimum and maximum dim levels (e.g., 20/80, 30/90, 10/70, etc.), all loads maintain the same percentage of difference. Loads in a group always ramp at the same rate.

When you select the **Dimmer** function, the following options are displayed in the Programming tab.



#	ID	Load Name	Description	Preset/Minimum Turn On	Minimum	Maximum
1	04-2	Load101	Downlights	60	0	100
2	09-1	Load103	Downlights	70	0	100
3	04-1	Load104	Cove	80	0	100
4	04-3	Load105	Ceiling Fan	40	0	100
5	04-4	Load106	Reading Downlights	55	0	100
6	09-2	Load107	Ocean Floods	83	0	100
7	01-1	Load108	Exterior	20	0	100
8	04-5	Load116	Downlights	50	0	100
9	09-3	Load117	Lamp	35	0	100
10	04-6	Load118	Downlights	90	0	100
11	04-7	Load119	Downlights	28	0	100
12	04-8	Load120	Desk	40	0	100

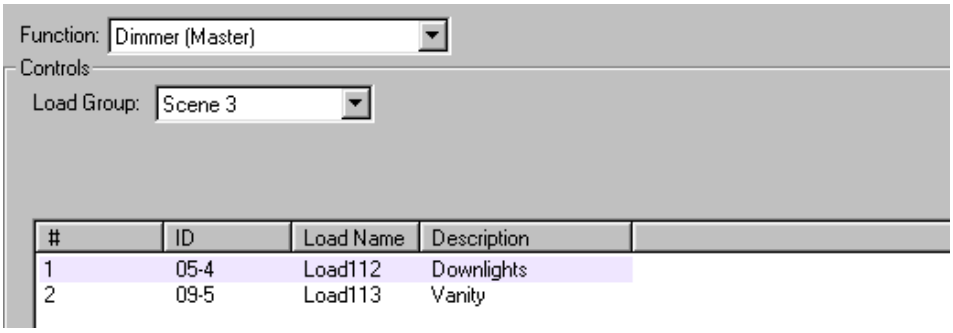
Load Group Click ▼ and select a load group from the drop-down list. The loads in the load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

Ramp Time Enter the amount of time (in seconds) that it will take to go from the minimum dim value to the maximum dim value (and vice versa) when the button is held in. The minimum and maximum values are entered in the load list (see below).

LED Invert Select this option if you want to reverse the LED action for the function.

Dimmer (Master) (Standard/Compact)

When you select the **Dimmer (Master)** function, the following options are displayed in the Programming tab.



Load Group Click ▼ and select a load group from the drop-down list. The loads in the load group are listed. The Dimmer (Master) function can control multiple loads. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

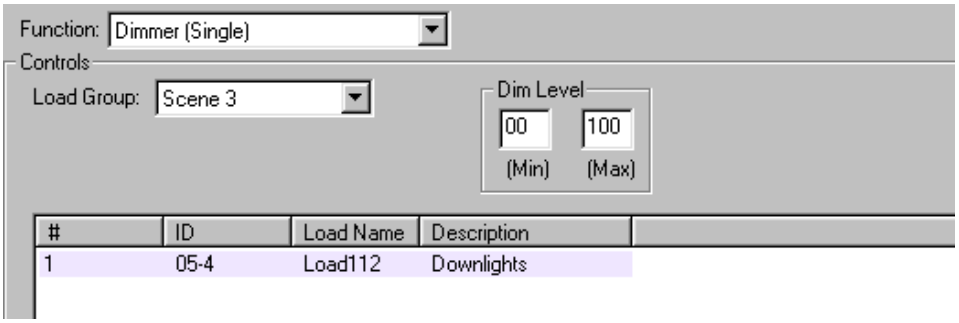
NOTE ☞ For optimum performance, it is suggested that no more than 10 loads be assigned to each Dimmer (Master) switch.

The dimmer related settings, "Ramp Time," "LED Invert," and "Minimum Turn On Level" are included in the global parameters for Standard and Compact CCUs. Refer to "Switch/LED Invert" on page 51 for information on these settings.

If all of the loads controlled by a Dimmer (Master) switch are off, they will turn on when the button is pressed. If all of the loads controlled by a Dimmer (Master) switch are on, they will turn off when the button is pressed and released quickly (within one-half second). If part of the loads controlled by this switch type are off, they are turned on when the button is pressed. If the button is held for more than one-half second, the loads begin a raise or lower action. The action will normally be opposite the previous raise/lower action that occurred from the switch. When loads are turned on by the press of a button, the loads will first rise in intensity.

Dimmer (Single) (Standard/Compact)

When you select the **Dimmer (Single)** function, the following options are displayed in the Programming tab.



Load Group Click and select a load group from the drop-down list. The Dimmer (Single) function can control only a single load (a load group that contains one load). Use the Load Group tab to create or edit load groups (refer to page 136 for information).

Dim Level Enter a minimum and maximum dim level for the load when ramping.

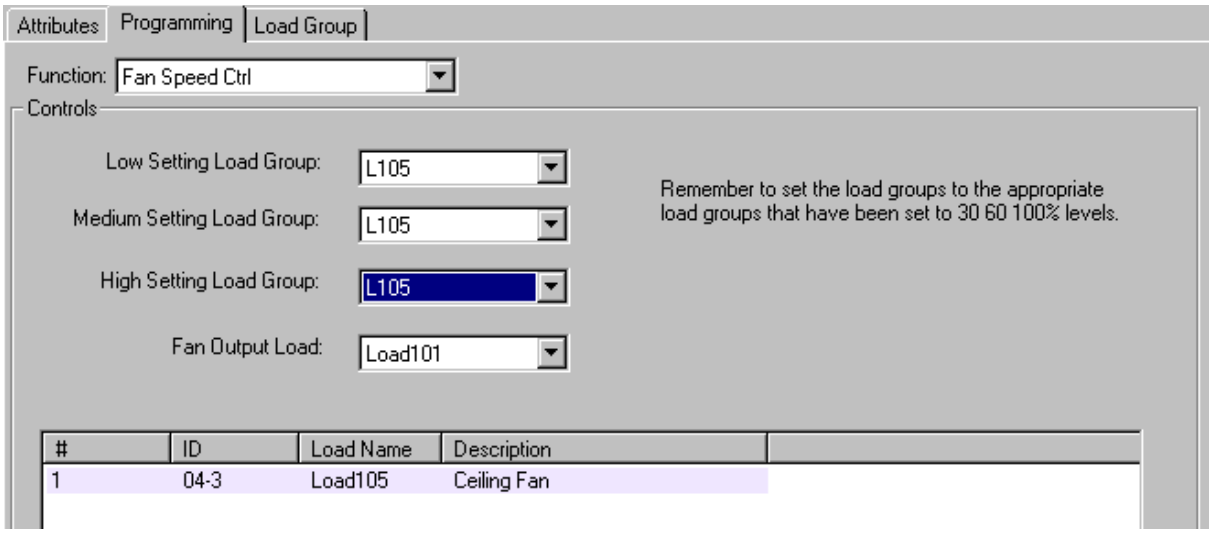
The dimmer related settings, "Ramp Time," "LED Invert," and "Minimum Turn On Level" are included in the global parameters for Standard and Compact CCUs. Refer to "Switch/LED Invert" on page 51 for information on these settings.

Fan Speed Control (5000LC)

The Fan Speed Control function changes the speed of a connected fan. Speed options are low, medium, high, and off. To select a speed, the button is pressed once for each option (i.e, press once to select high, twice to select medium, and three times to select low speed). The button is pressed again to turn off the fan.

The LED on the button blinks when the button is pressed to indicate fan speed: one blink for low, two blinks for medium, and three blinks for high.

When you select the **Fan Speed Control** function, the following options are displayed in the Programming tab.


Attributes
Programming
Load Group
Function: Fan Speed Ctrl
Controls
Low Setting Load Group: L105
Medium Setting Load Group: L105
High Setting Load Group: L105
Fan Output Load: Load101
Remember to set the load groups to the appropriate load groups that have been set to 30 60 100% levels.
ID Load Name Description
1 04-3 Load105 Ceiling Fan

Use the Load Group tab to create or edit load groups (refer to page 136 for information). Then select a load group for each fan speed as follows.

Low Setting Load Group Click ▼ and select a load group for the fan's low speed from the drop-down list. The loads in the load group are listed. The load group's preset level/minimum turn on must be set at 30%.

Medium Setting Load Group Click ▼ and select a load group for the fan's medium speed from the drop-down list. The loads in the load group are listed. The load group's preset level/minimum turn on must be set at 60%.

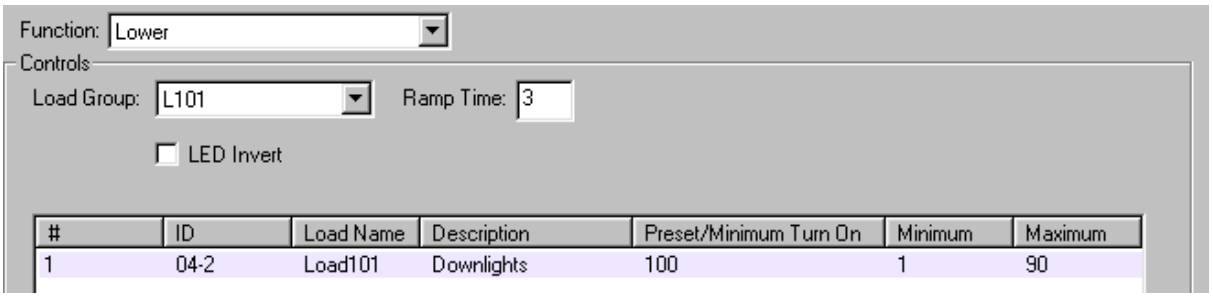
High Setting Load Group Click ▼ and select a load group for the fan's high speed from the drop-down list. The loads in the load group are listed. The load group's preset level/minimum turn on must be set at 100%.

Fan Load Output Click ▼ and select a load for the moduleoutput to which the fan is connected.

Lower (5000LC)

The Lower function initiates a "StartRampToMin()" command when the button is pressed and a "StopRamp()" when the button is released. This function is paired with the Raise function.

When you select the **Lower** function, the following options are displayed in the Programming tab.


Function: Lower
Controls
Load Group: L101
Ramp Time: 3
LED Invert
ID Load Name Description Preset/Minimum Turn On Minimum Maximum
1 04-2 Load101 Downlights 100 1 90

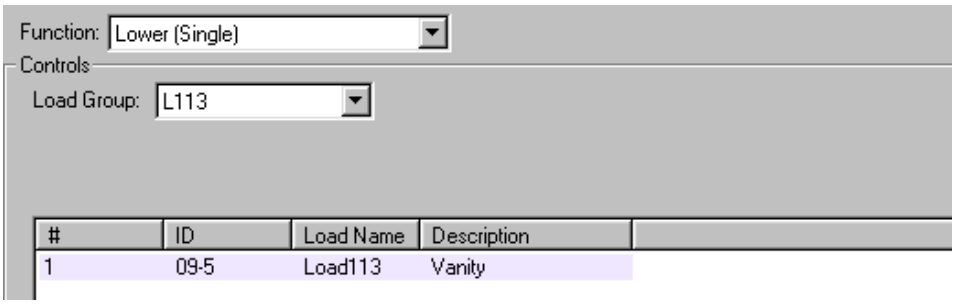
Load Group Click and select a load group from the drop-down list. The loads in the load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

Ramp Time Enter the amount of time (in seconds) you want it to take to ramp to the minimum position when the button is pressed.

LED Invert Select this option if you want to reverse the LED action for the function.

Lower (Single) (Standard/Compact)

The Lower (Single) function allows a single load to lower at an even rate. While the button is held in, the load lowers. When the button is released, the load holds its current level. When you select the **Lower (Single)** function, the following options are displayed in the Programming tab.

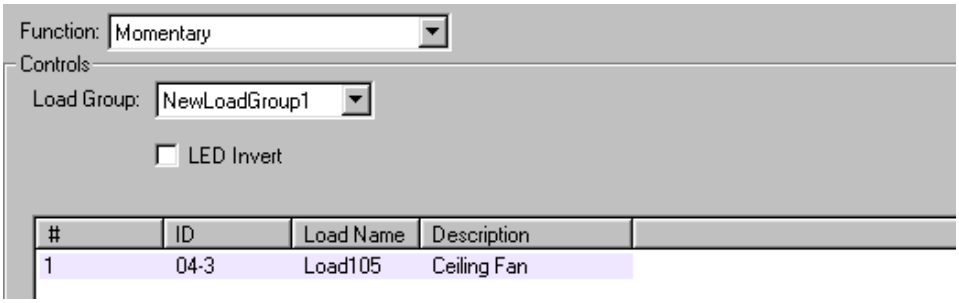


Load Group Click and select a load group from the drop-down list. The Lower (Single) function can control only a single load (a load group that contains one load). Use the Load Group tab to create or edit load groups (refer to page 136 for information).

The dimmer related settings, “Ramp Time,” “LED Invert,” and “Minimum Turn On Level” are included in the global parameters for Standard and Compact CCUs. Refer to “Switch/LED Invert” on page 51 for information on these settings.

Momentary (All CCUs)

The Momentary function is used to turn on a load group when the button is pressed and turn it off when the button is released. When you select the **Momentary** function, the following options are displayed.



Load Group Click and select a load group from the drop-down list. The loads in the selected load group are listed. For Standard/Compact CCUs, the load group can only have one load. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

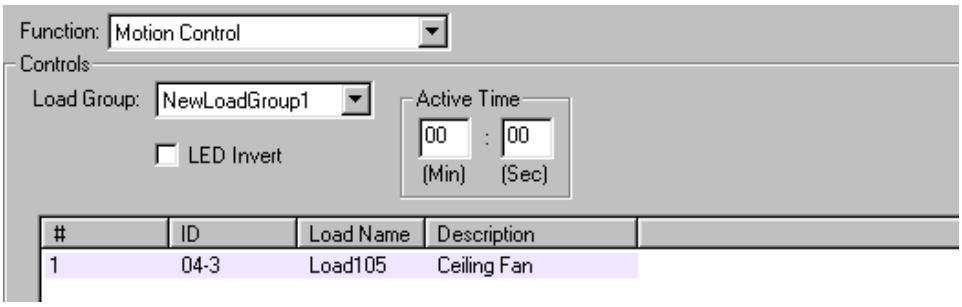
LED Invert For the 5000LC, select this option if you want to reverse the LED action for this function. For Standard/Compact CCUs, the "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

Motion Control (5000LC)

The Motion Control function is used to control two-way motor loads. When the button is pressed, the loads are started in motion in one direction. The load group remains on for the active time specified, then turns off. The LED is lit for the duration. When the button is pressed again, the direction is reversed and the load group remains on for the specified active time. If the button is pressed while the motors are running, they will stop.

Each time the button is pressed, the direction of the last action is reversed. As long as none of the loads are also part of another load group, all motors in the load group remain synchronized.

When you select the **Motion Control** function, the following options are displayed in the Programming tab.



Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

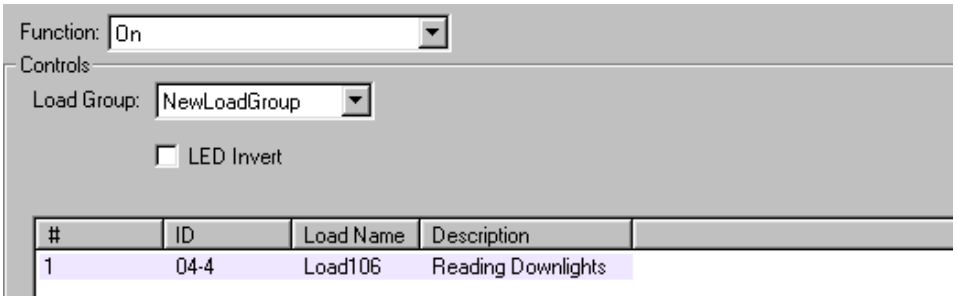
LED Invert Select this option if you want to reverse the LED action for this function.

Active Time Enter the duration that the load group should remain on each time the button is pressed. For example, when opening/closing blinds or curtains, set the active time for the load that requires the longest duration. Enter the time in minutes and seconds. For example, enter 02 and 15 for two minutes and 15 seconds.

Off, On (5000LC) Master Off, Master On (Standard/Compact)

The Off and On functions (Master Off and On for Standard/Compact CCUs) represent discreet on and off values. "On" turns the load group on; "Off" turns it off.

When you select the **On** or **Off** function, the following options are displayed in the Programming tab.



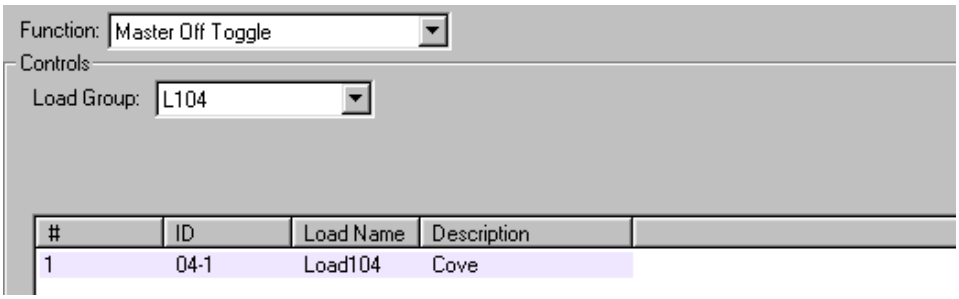
Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed. For Standard/Compact CCUs, the load group can only have one load. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LED Invert For the 5000LC, select this option if you want to reverse the LED action for this function. For Standard/Compact CCUs, this option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

Master Off Toggle (Standard/Compact)

The Master Off Toggle function allows one or more loads to be turned on and off. If part of the loads controlled by this switch type are on, they are turned off when the button is pressed.

When you select the **Master Off Toggle** function, the following options are displayed in the Programming tab.



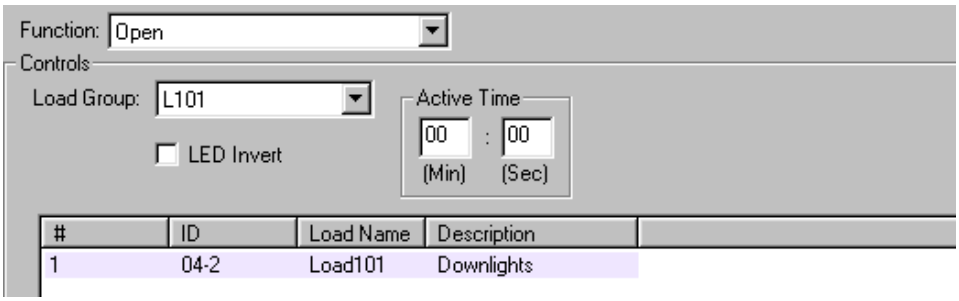
Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

The "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

Open (5000LC)

The Open function sets the module outputs to "open," waits a specified period of time, then sets the outputs to "stop." If the button is pressed during the wait period, the module outputs are placed in the stop state. This function is paired with the Close function.

When you select the **Open** function, the following options are displayed in the Programming tab.



Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LED Invert Select this option if you want to reverse the LED action for this function.

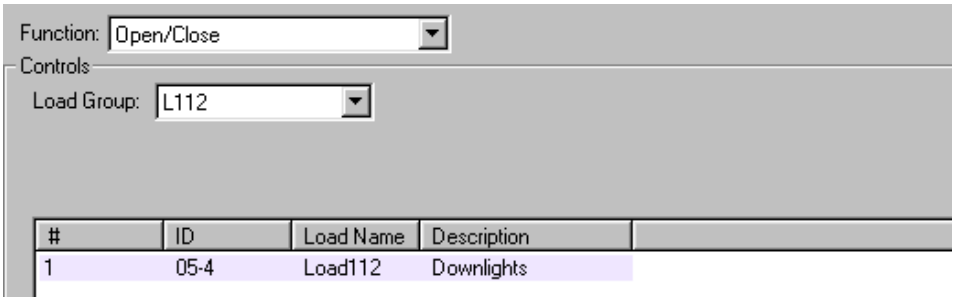
Active Time Enter the duration that the load group should remain in the "open" position. Enter the time in minutes and seconds. For example, enter 02 and 15 for two minutes and 15 seconds.

Open/Close (Standard/Compact)

The Open/Close function acts on two outputs of a control module and is designed to operate the interlock relay module. The Open/Close switch type must be used in pairs with one switch for open and another for close. If the load controlled by a switch is off, it is turned on when the button is pressed and the other (interlocked) load is turned off. If the load controlled by the switch is on, it is turned off and any motion is stopped.

WARNING The motion control device MUST HAVE END LIMIT SWITCHES to prevent damage to the motor and drive mechanism.

When you select the **Open/Close** function, the following options are displayed in the Programming tab.



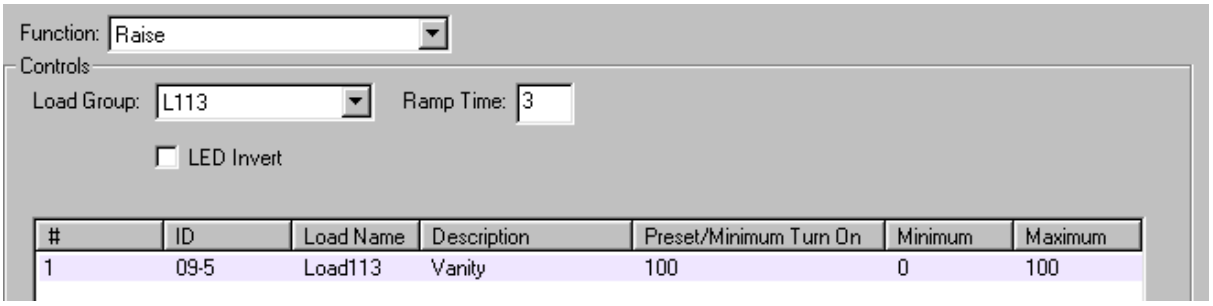
Load Group Click ▼ and select a load group that consists of a single load from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

The "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

Raise (5000LC)

The Raise function initiates a "StartRampToMax()" command when the button is pressed and a "StopRamp()" when the button is released. This function is paired with the Lower function.

When you select the **Raise** function, the following options are displayed.


Function: Raise
Controls
Load Group: L113
Ramp Time: 3
LED Invert
ID Load Name Description Preset/Minimum Turn On Minimum Maximum
1 09-5 Load113 Vanity 100 0 100

Load Group Click ▼ and select a load group from the drop-down list. The loads in the load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

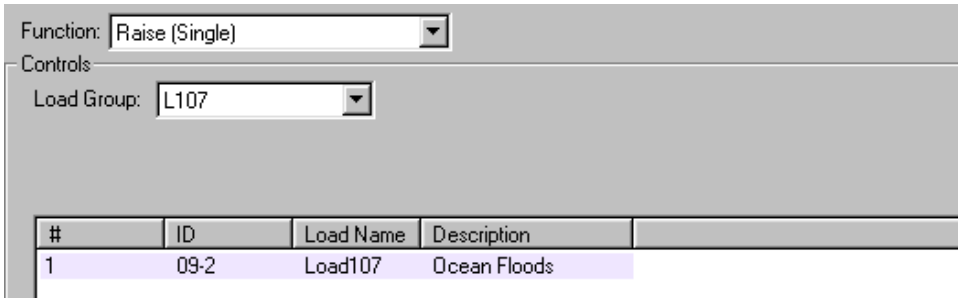
Ramp Time Enter the amount of time (in seconds) that it will take to ramp to the minimum position.

LED Invert Select this option if you want to reverse the LED action for this function.

Raise (Single) (Standard/Compact)

The Raise (Single) function allows a single load to raise at an even rate. While the button is held in, the load raises. When the button is released, the load holds its current level.

When you select the **Raise (Single)** function, the following options are displayed in the Programming tab.



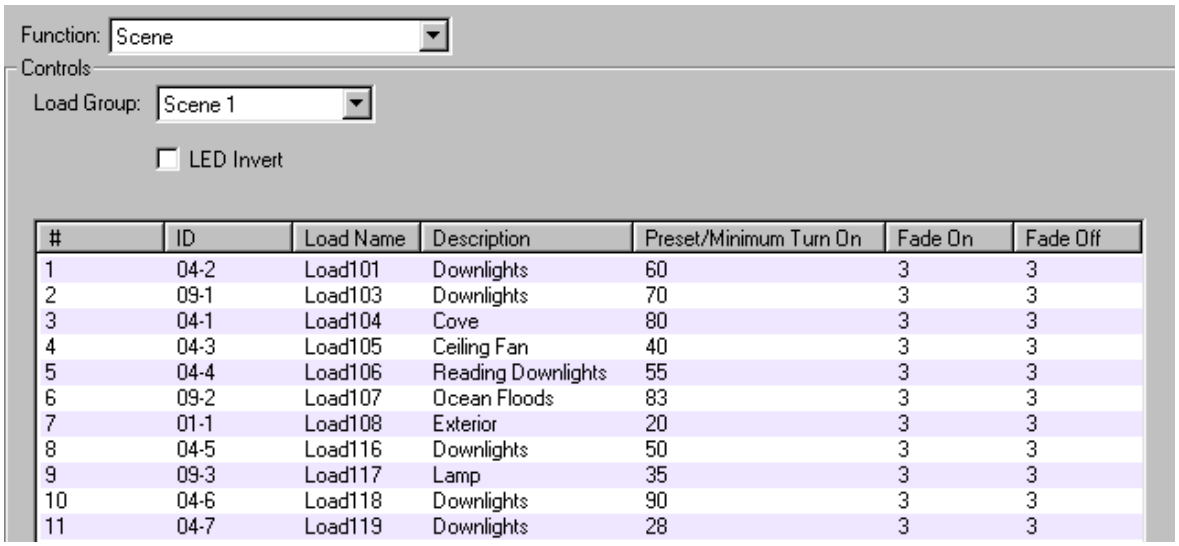
Load Group Click ▼ and select a load group that contains a single load from the drop-down list. The loads in the load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

The dimmer related settings, “Ramp Time,” “LED Invert,” and “Minimum Turn On Level” are included in the global parameters for Standard and Compact CCUs. Refer to “Switch/LED Invert” on page 51 for information on these settings.

Scene (5000LC)

The Scene function is used to define a scene that specifies on and off actions. On the first button press, the scene fades on to scene levels. On the second press, it fades off.

When you select the **Scene** function, the following options are displayed in the Programming tab.



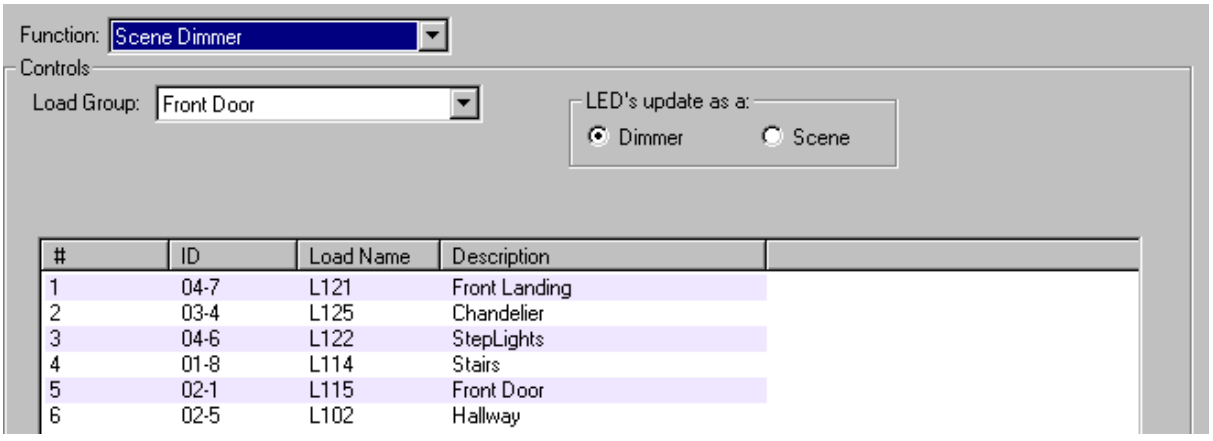
#	ID	Load Name	Description	Preset/Minimum Turn On	Fade On	Fade Off
1	04-2	Load101	Downlights	60	3	3
2	09-1	Load103	Downlights	70	3	3
3	04-1	Load104	Cove	80	3	3
4	04-3	Load105	Ceiling Fan	40	3	3
5	04-4	Load106	Reading Downlights	55	3	3
6	09-2	Load107	Ocean Floods	83	3	3
7	01-1	Load108	Exterior	20	3	3
8	04-5	Load116	Downlights	50	3	3
9	09-3	Load117	Lamp	35	3	3
10	04-6	Load118	Downlights	90	3	3
11	04-7	Load119	Downlights	28	3	3

Load Group Click ▼ and select a load group. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LED Invert Select this option if you want to reverse the LED action for this function.

Scene Dimmer (5000LC)

When a Scene Dimmer button is pressed, it toggles the scene on and off. When it is pressed and held, loads in the load group assigned to the button begin ramping up and down until the button is released or for approximately three ramp cycles. When you select the Scene Dimmer function, the following options are displayed in the Programming tab.



#	ID	Load Name	Description
1	04-7	L121	Front Landing
2	03-4	L125	Chandelier
3	04-6	L122	StepLights
4	01-8	L114	Stairs
5	02-1	L115	Front Door
6	02-5	L102	Hallway

Load Group Click ▼ and select a load group. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LEDs update as a Select whether you want the LED on this button to act as a dimmer or a scene.

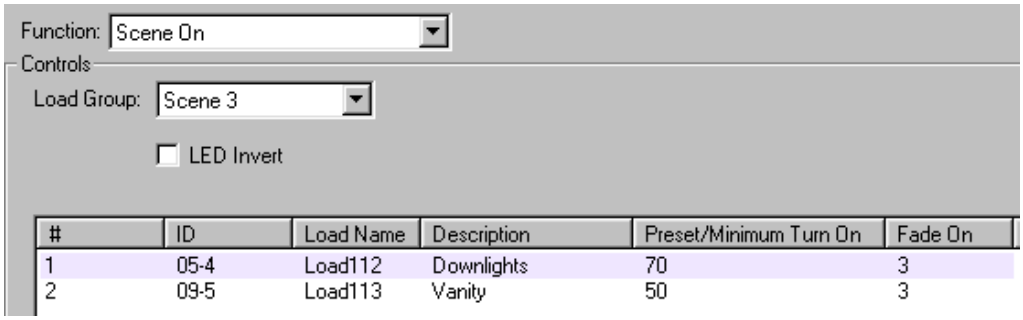
Dimmer
Select this option if you want the LED to light whenever the assigned loads are activated.

Scene
Select this option if you want the LED to light only when the assigned loads are turned on to their preset levels.

Scene On (5000LC)

The Scene On function is used to define a scene that can be turned on (fades on to scene levels) but cannot be turned off from the same switch. The scene must be turned off using a different switch or method.

When you select the **Scene On** function, the following options are displayed in the Programming tab.


Function: Scene On
Controls
Load Group: Scene 3
LED Invert
ID Load Name Description Preset/Minimum Turn On Fade On
1 05-4 Load112 Downlights 70 3
2 09-5 Load113 Vanity 50 3

Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LED Invert Select this option if you want to reverse the LED action for the function.

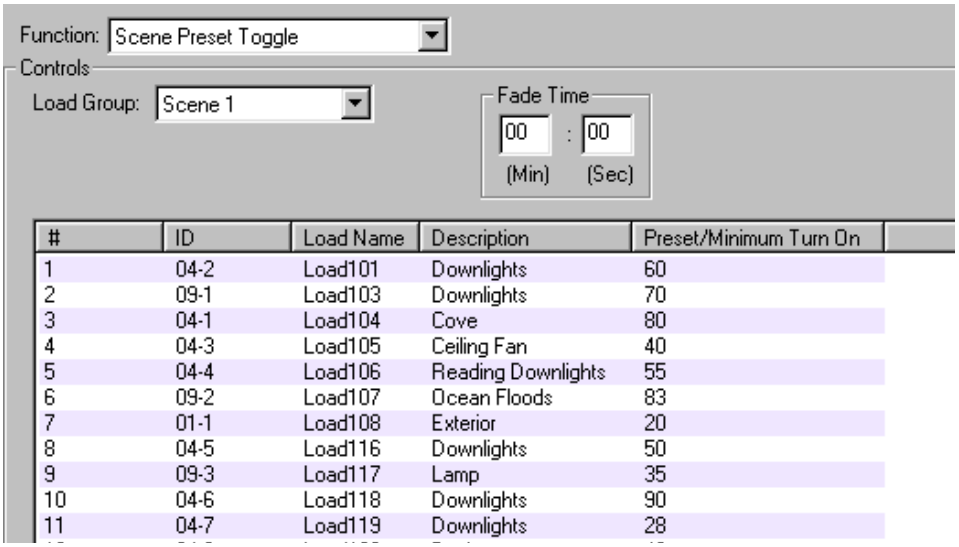
Scene Preset Toggle (Standard/Compact)

The Scene Preset Toggle function can be set up to act as a Scene Toggle or a Scene On function in Job Parameters (see "Switch/LED Invert," "Scene Option" on page 52). The Scene Preset Toggle function is used to turn a scene on (and off if "Scene Toggle" is selected) at preset levels using specified fade on and fade off times.

If set up as "Scene Toggle," the same switch is used to turn the scene on and off. On the first button press, the scene fades on to scene levels. On the second press, it fades off. If set up as "Scene On," one switch is used to turn the scene on and a different switch is used to turn the scene off.

The scene preset levels for the Scene Preset Toggle function may be locked or unlocked. For the Standard CCU, this is set up in Job Parameters (see "Switch/LED Invert," "Scene Preset Levels (Standard CCU Only)" on page 52). The Compact CCU has a switch on the bottom of the cabinet to lock or unlock scene preset levels. If set to "locked," the user cannot change the preset levels for the scene (see "Switch/LED Invert," "Scene Preset Levels (Standard CCU Only)" on page 52). If set to "unlocked," the user can change the scene presets. The user can record the current settings of the scene by holding the button in for more than 4 seconds. The newly recorded settings become the presets for the scene.

When you select the **Scene Preset Toggle** function, the following options are displayed in the Programming tab.



#	ID	Load Name	Description	Preset/Minimum Turn On
1	04-2	Load101	Downlights	60
2	09-1	Load103	Downlights	70
3	04-1	Load104	Cove	80
4	04-3	Load105	Ceiling Fan	40
5	04-4	Load106	Reading Downlights	55
6	09-2	Load107	Ocean Floods	83
7	01-1	Load108	Exterior	20
8	04-5	Load116	Downlights	50
9	09-3	Load117	Lamp	35
10	04-6	Load118	Downlights	90
11	04-7	Load119	Downlights	28

Load Group Click and select a load group. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

Fade Time Enter a fade time in minutes and seconds. For example, enter 02 : 00 for 2 minutes, enter 02 : 15 for 2 minutes and 15 seconds, enter 00 : 45 for 45 seconds, and so on. The fade time allows dimmable loads to gradually fade up/down to the target level. A fade time of 0 causes immediate setting to the target level. When multiple loads are being controlled, each load fades at an even rate. Thus, a load at 60% intensity takes twice as long to fade up to 100% as does a load at 80% intensity.

The "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

Switch Pointer (5000LC)

The Switch Pointer function can be used when two or more switches use the same function and load group. Define a function for a source switch, then assign the Switch Pointer function to a duplicate switch. The Switch Pointer function "points" to the source switch's function and load group and also updates the LEDs so they match the source switch's LEDs.

When you select the **Switch Pointer** function, the following options are displayed in the Programming tab

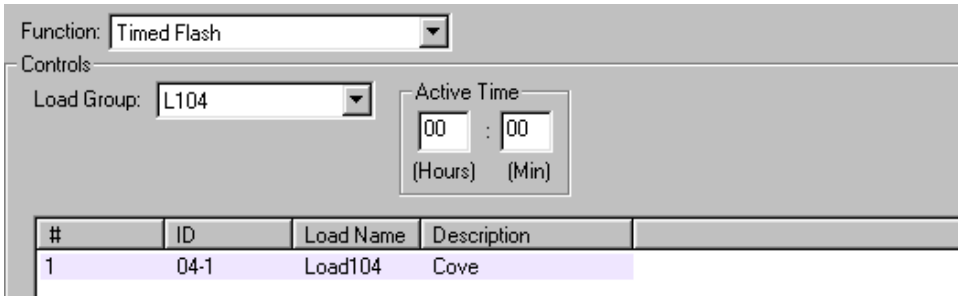
NOTE ☞ You can also create duplicate switch assignments by using the same load group and function at both keypad locations.

Switch Click ▼ and select the source switch.

NOTE ☞ If you modify or delete a source switch, remember that the Switch Pointer switch will also be affected. For example, if you change a source switch's load group, you must edit each switch that points to it and select the source switch again.

Timed Flash (Standard/Compact)

The Timed Flash function turns the load(s) in the assigned load group on and off at one second intervals. The flashing lasts for the duration specified. Any number of loads can be assigned to the load group. When you select the **Timed Flash** function, the following options are displayed in the Programming tab.



Load Group Click and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

Active Time Enter the duration that you want the load group to flash on and off. Enter the time in hours and minutes. For example, enter 00 : 20 for 20 minutes, enter 02 : 15 for 2 hours and 15 minutes, and so on.

The "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

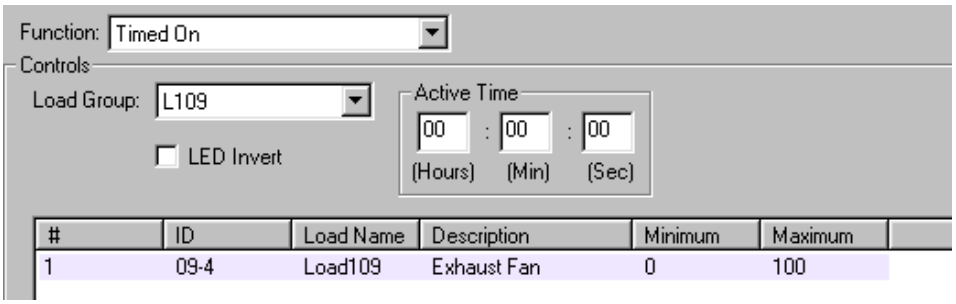
Timed On, Timed Toggle (5000LC)

The Timed On and Timed Toggle functions use a timer to specify the duration that the load group will remain on (e.g., bathroom fans). When the switch is activated, it turns on the load group and the timer, and then the load group automatically turns off after the specified duration.

With the Timed On function, if the button is pressed again while the load group is still activated, the timer resets, and the load group remains on for the full duration again.

With the Timed Toggle function, if the button is pressed again while the load group is still on, the load group turns off.

When you select the **Timed On** or **Timed Toggle** function, the following options are displayed in the Programming tab.



Load Group Click and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LED Invert Select this option if you want to reverse the LED action for the function.

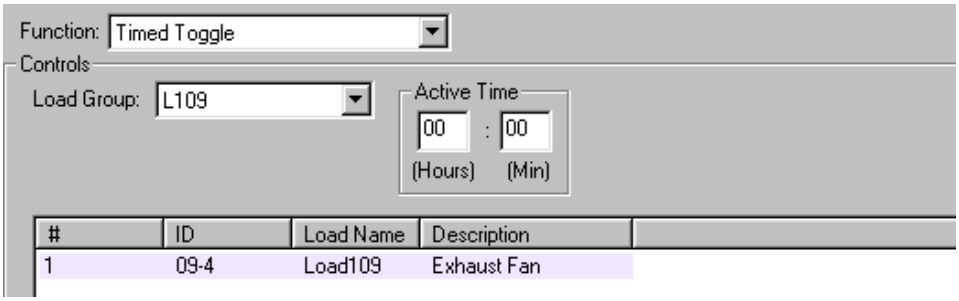
Active Time Enter the duration that you want the load group to remain on. Enter the time in hours, minutes, and seconds. For example, enter 00 : 20 : 00 for 20 minutes, enter 02 : 15 : 00 for 2 hours and 15 minutes, enter 00 : 00 : 45 for 45 seconds, and so on.

Timed Toggle (Standard/Compact)

The Timed Toggle function uses a timer to specify the duration that the load group will remain on (e.g., bathroom fans). When the switch is activated, it turns on the load group and the timer, and then the load group automatically turns off after the specified duration.

The Timed Toggle function can be set up to act as a Timed Toggle or a Timed On function in Job Parameters. Refer to "Switch/LED Invert," "Timed Option" on page 51. If set up as "Timed Toggle," the load group turns off if the button is pressed again while the load group is still on. If set up as "Timed On," the timer resets and the load group remains on for the full duration again if the button is pressed again while the load group is still activated.

When you select the **Timed Toggle** function, the following options are displayed in the Programming tab.



Load Group Click ▼ and select a load group. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

Active Time Enter the duration that you want the load group to remain on. Enter the time in hours and minutes. For example, enter 00 : 20 for 20 minutes, enter 02 : 15 for 2 hours and 15 minutes, and so on.

The "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

Toggle (On), Toggle (Off) (5000LC)

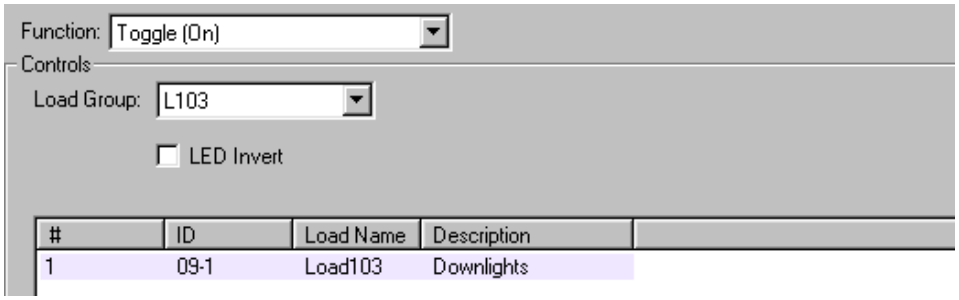
The Toggle (On) and Toggle (Off) functions turn the load group on and off. However, when controlling multiple loads, whether a load is turned on or off depends on the state of the load when the button is pressed, as follows:

- If only some of the loads in the load group are on when Toggle (Off) is first pressed, they are turned off so that all loads are off. The next press of Toggle (Off) turns all loads on. Pressing it again turns all loads off. Subsequent presses turn all loads on and off.

- If only some of the loads in the load group are off when Toggle (On) is first pressed, they are turned on so that all loads are on. The next press of Toggle (On) then turns all loads off. Pressing it again turns all loads on. Subsequent presses turn all loads off and on.
- In a load group that contains a single load, there is no difference between Toggle (Off) and Toggle (On).

The LED for either toggle is on when any load in the group is on.

When you select the **Toggle On** or **Toggle Off** function, the following options are displayed in the Programming tab.



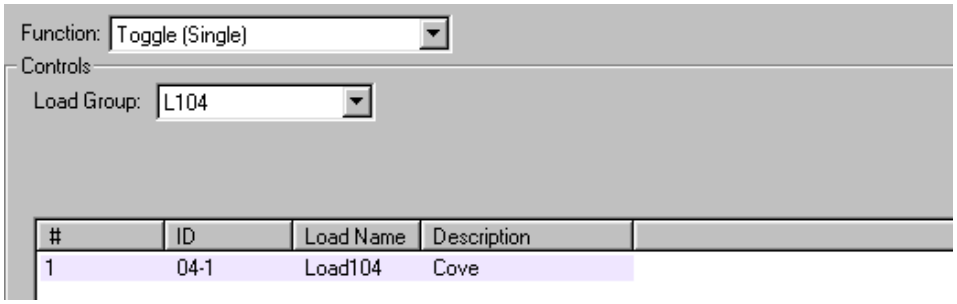
Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

LED Invert Select this option if you want to reverse the LED action for this function.

Toggle (Single) (Standard/Compact)

The Toggle (Single) function allows a single load to be turned on or off. If the load is on, it will turn off when the button is pressed. If the load is off, it will turn on when the button is pressed. The LED is on when the load is on.

When you select the **Toggle (Single)** function, the following options are displayed in the Programming tab.



Load Group Click ▼ and select a load group that contains a single load from the drop-down list. The loads in the selected load group are listed. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

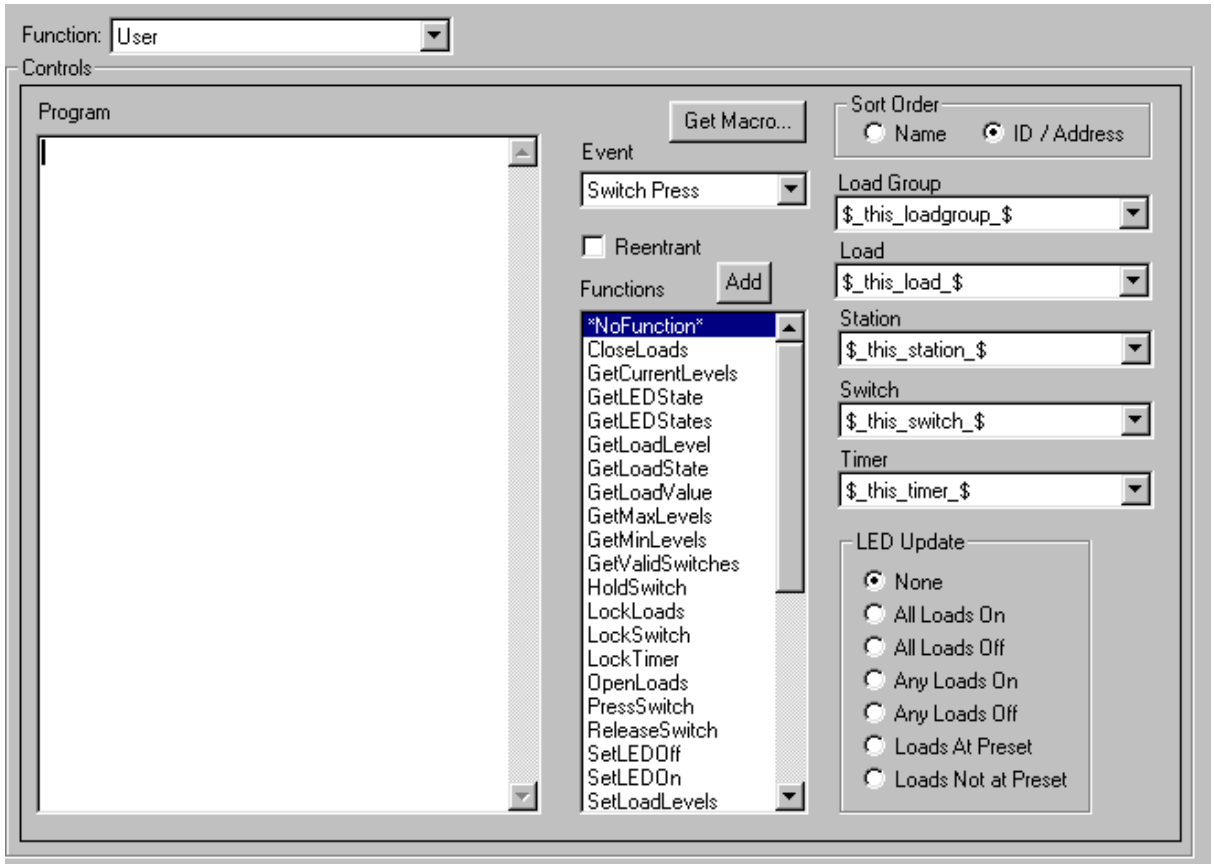
The "LED Invert" option is included in the global settings for the CCU (see "Switch/LED Invert" on page 51).

User (5000LC)

The User function is used to create a program with custom (user) instructions. A user program can be as simple or as complex as you require and is capable of executing any action (or series of actions) supported by the CCU.

You can assign a User function to a switch or timer. When assigned to a switch, the user program can execute separate instructions for press, hold, or release actions. When assigned to a timer, it can execute separate instructions for the timer's start or stop actions. (A stop action is not executed unless a duration is specified.)

When you select the **User** function, the following options are displayed in the Programming tab.



Event Select the event to be executed by the program, **Switch Press**, **Switch Hold**, or **Switch Release**.

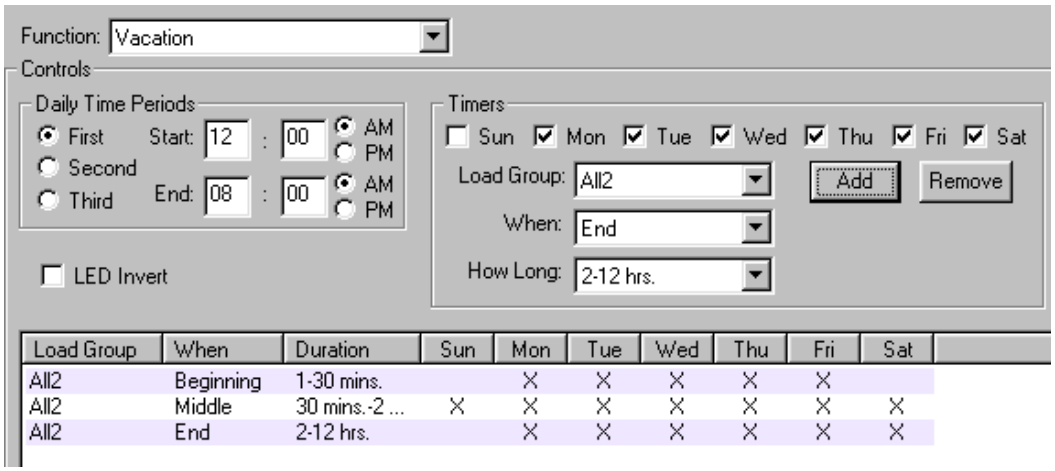
The remaining options are used to create the user program. The program is then displayed in the Program box. For instructions, refer to Chapter 12, "5000LC Programming" beginning on page 181.

The **[Get Macro]** button is used to import a macro program. A macro is a file containing a pre-defined program. For information on macros, refer to Chapter 13, "5000LC Macros" on page 205.

Vacation (5000LC)

Assign the Vacation function to a switch to turn the vacation mode on or off. The Programming tab is used to set up programs that switch different loads on and off in a random pattern to simulate routine household activities. You select up to three time periods (e.g., morning, midday, evening) and assign timers and load groups to each time period. The CCU then randomly turns the loads on and off during the time period. The vacation mode is executed by pressing the button and is ended by pressing the button again.

When you select the **Vacation** function, the following options are displayed in the Programming tab.


Function: Vacation
Controls
Daily Time Periods
First
Second
Third
Start: 12 : 00 AM PM
End: 08 : 00 AM PM
LED Invert
Timers
Sun Mon Tue Wed Thu Fri Sat
Load Group: All2
When: End
How Long: 2-12 hrs.
Add
Remove
Load Group When Duration Sun Mon Tue Wed Thu Fri Sat
All2 Beginning 1-30 mins. X X X X X
All2 Middle 30 mins.-2 ... X X X X X X X
All2 End 2-12 hrs. X X X X X X

LED Invert Select this option if you want to reverse the LED action for this function.

Daily Time Periods Vacation timer events are defined by time period. Select the time period you want to set up. Then set up the start and end time of the period, select the load groups to be turned on and off during the period, select the days of the week you want timers added for each load group, and select *when* and for *how long* during the period each load group is to be activated using the remaining fields, described below.

When you have finished defining the first period, you can select a second and then a third time period and set each up in the same manner. For example, you can define a first period based on a family's morning routine, a second period based on their midday routine, and a third period based on their evening/night routine.

Start/End Enter the start and end times for the period selected. In the first field, type the hour (type **05** for five o'clock,**10** for ten o'clock, and so on). Click in the next field, and type the minutes after the hour (e.g., 05, 30, 45, etc.). Leave the minute field blank or type **00** for an even hour value. Then, click "**AM**" or "**PM**."

Use the following fields to set up one or more load groups to be activated during the specified period and the days and time frames that you want each load group to be active.

Timers Select each day of the week that you want the selected load group (below) to be active. Timers are added to the job for each day selected.

NOTE ☞ To view the timers for a Vacation function, in the Timers view, select [**Edit DST and Astro**], and enable the "Show Vacation Mode Timers" option. Refer to "Edit DST and Astronomical Settings" on page 169 for more information.

Load Group Click ▼ and select a load group to be activated during the specified period on the selected days of the week. Use the Load Group tab to create or edit load groups (refer to page 136 for information).

When Click ▼ and select "when" during the period the selected load group should cycle, **Anytime** (random), **Beginning**, **Middle**, or **End**. The time frame that each load stays on is controlled by the entry in the "How Long" field (below).

How Long After selecting when a load will turn on ("When" field, above), indicate how long the load should remain on. The choices are **1–30 minutes**, **30 minutes–2 hours**, or **2–12 hours**.

[Add] Click [**Add**] to add the load group setup to the time period. Then set up each additional load group for the same period in the same manner. All load groups that have been added to the period are listed.

[Remove] To remove a load group from the period, select it in the list and click [**Remove**].

NOTE ☞ If power is lost while vacation mode is active, it becomes inactive, and loads return to their previous states and levels.

Vacation Switch (Standard/Compact)

The Vacation Switch function is used to turn vacation mode on and off. You set up vacation mode using the "Parameters" option in Job Parameters (see "Vacation Mode" on page 54). The vacation mode is executed by pressing the button and is ended by pressing the button again.

When you select the **Vacation Switch** function, no options are displayed in the Programming tab. The Vacation Switch is a simple on/off switch.

Load Group Tab

A load group is a group of loads (and their parameters) used together in one switch. LiteWare 3.8 uses load groups to make load management easier. A load group may consist of a single load, several loads, or all loads in the load list. In addition, a load may belong to any number of load groups, and one load group can be assigned to more than one switch.

Standard/Compact CCU Load Groups

The program file (or definition file) for Standard and Compact CCUs includes only *load* information (i.e., load names and preset level/minimum turn on level setting, if entered). Load group information, such as the name, description, ID, and so on, is not included.

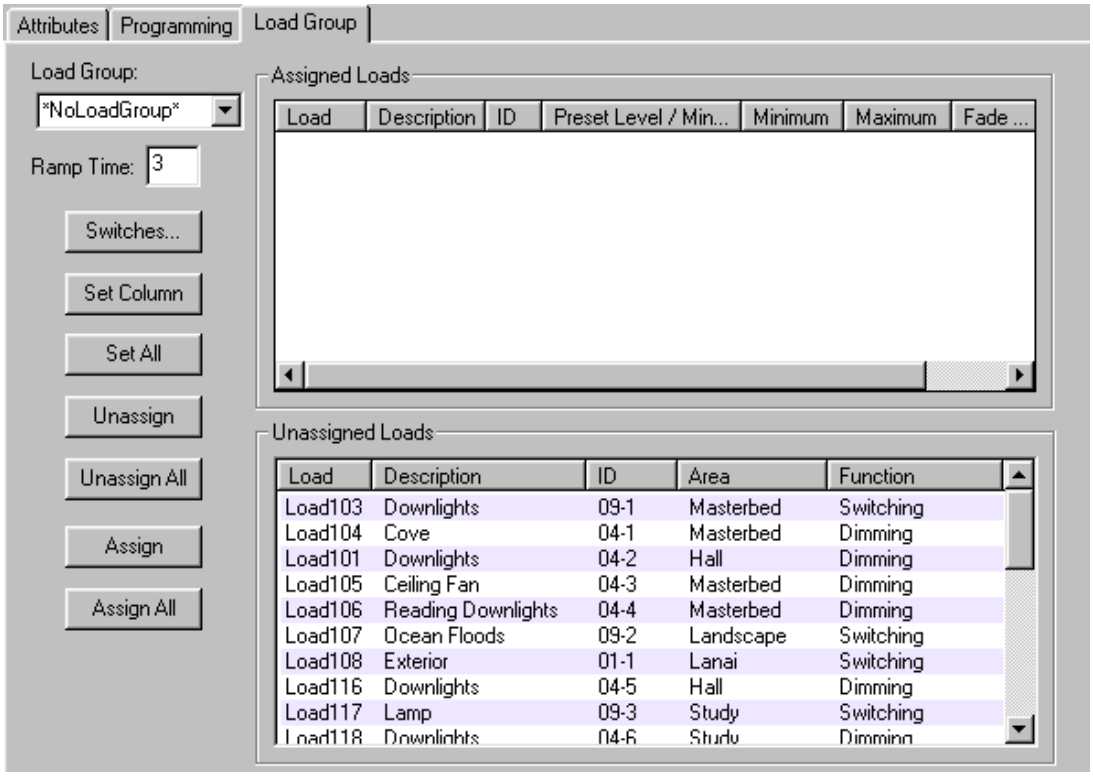
You create two types of load groups for Standard and Compact CCUs. Those that contain multiple loads for "master" switches and those that contain only one load for "single" switches.

Add a Load Group

Click the **Load Group** tab to create or edit a load group.

Do the following to add a new load group.

1. If you have not yet created any load groups, "NoLoadGroup" is selected at the "Load Group" field. If you have created load groups, and you want to create a load group similar to an existing one, click ▼ and select the load group from the drop-down list. You can select "NoLoadGroup" if you want to start with an "empty" load group. Type over the label or selected load group name to enter a new load group name.



NOTE ☞ Load group names can be up to 49 characters long. When the job is converted to a program file for upload to the CCU, load group names are truncated to 15 characters (for the 5000LC only). LiteWare 3.8 automatically creates unique load group names of 15 characters.

NOTE ☞ If you make changes to an existing load group (without changing the name), you change it for all switches in the database to which it has been assigned. If you don't want to change the existing load group, make sure you enter a new name.

2. All loads that have not yet been assigned to the load group are listed in the "Unassigned Loads" box. Use the scroll bar on the right to move through the load list. To assign a single load to the load group, click the load to select it, then click [**Assign**], or double-click the load. To select several consecutive loads, press and hold **<Shift>**, then click the first and last loads in the group you want to select. To select several non-consecutive loads, press and hold **<Ctrl>**, then click each load that you want to select. The load or loads are added to the "Assigned Loads" list.

   To assign all unassigned loads to the load group, click [**Assign All**].

3. To remove a load from the "Assigned Loads" list, click it to select it and then click [**Unassign**]. To unassign all loads from the load group, click [**Unassign All**].

4. Set the ramp time, dimmer levels, fade levels, and preset/minimum turn-on levels for the loads as required. Refer to the next section for information.

Set Parameters

After you assign the loads to a load group, you need to set the parameters. The number of parameters available depends on the type of CCU, as follows.

5000LC

Though the parameters for a load group will vary depending on the function, possible parameters include:

- ramp time for the load group
- minimum turn on/preset level per load
- minimum dim level per load
- maximum dim level per load
- fade on time per load
- fade off time per load

Standard/Compact

Parameters include:

- minimum turn on/preset level per load

NOTE ☞ If you change the parameters for a load group, they are changed for all switches to which the load group is assigned. If you require the same loads with different parameters, you must create a new load group.

Ramp Time (5000LC)

(Dimmer function only) Enter the amount of time (in seconds) that it will take to go from the minimum dim level to the maximum dim level (and vice versa) when the button is held in. This setting applies to all loads in the load group. The minimum and maximum levels for each load are entered in the assigned load list.

The following parameters are in columns in the "Assigned Loads" box. To edit a parameter, click in the parameter's table cell for the load you want to edit, then click again to get an edit box and cursor. (To see a complete column heading, click on the border between column headings, hold down the mouse button, and drag the column border.)

Load The load number is displayed for reference and cannot be changed.

Description The load description is displayed. You can change it here if necessary.

ID The assigned load address is displayed for reference and cannot be changed.

Preset Level/Minimum Turn-On Level (All CCUs) If the load group is for a scene switch, enter the preset level (where 0 is no light and 100 is full brightness). For other functions, enter the minimum turn-on level for the load. Normally a load will turn on to the last known level, but if the last level is lower than the minimum entered here, this value will be used instead.

Minimum (5000LC) (Dimmer function only) Enter the minimum dim value for the load when ramping.

Maximum (5000LC) (Dimmer function only) Enter the maximum dim value for the load when ramping.

Fade On (5000LC) Enter the number of seconds that the fade-on should last. This is the time from initial "turn on" until the preset, last known, or minimum turn-on level is reached.

Fade Off (5000LC) Enter the number of seconds that the fade-off should last. This is the time from the "on" state to the "off" state.

Area The area or location of the load is displayed for reference and cannot be changed.

Function The function of the load is displayed for reference and cannot be changed.

[Set Column] To set a parameter to the same value for all loads in the load group, enter the parameter's value in the table, then click **[Set Column]**.

[Set All] To set all parameters to the same values for all loads in the load group, enter all parameters' values for one load. Then, with that load selected, click **[Set All]**.

Switch Information

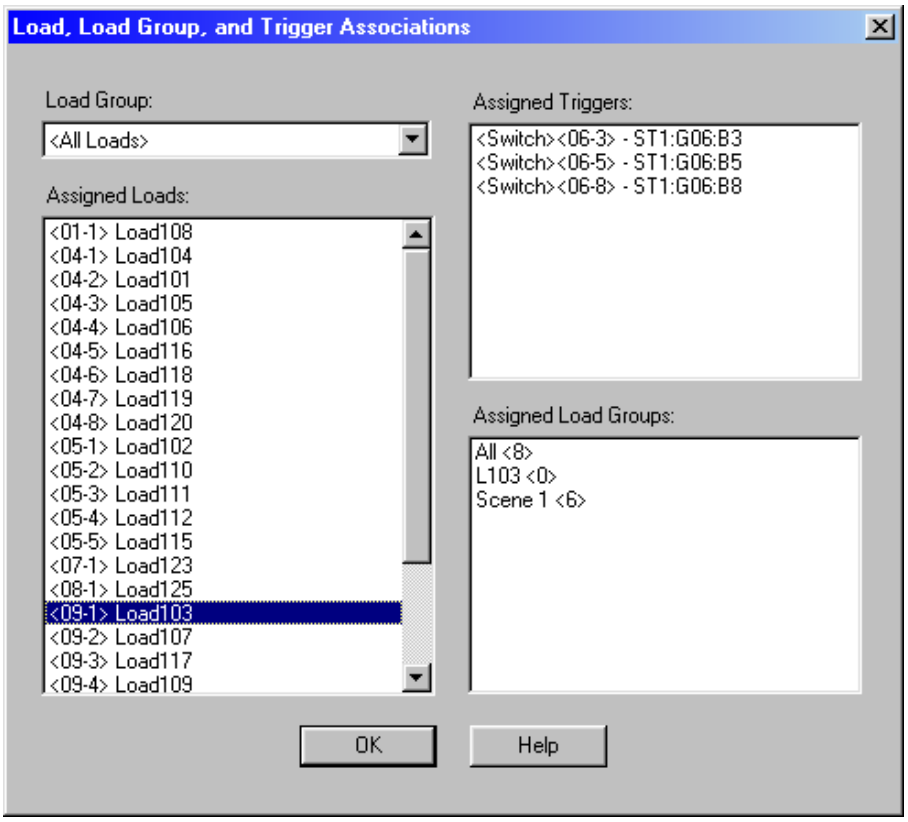
Click **[Switches]** to display information about the association between loads, load groups, and triggers. You can do the following:

- View the loads and triggers (switches and timers) used by a load group
- Identify all load groups to which a load belongs and which triggers use the load (see "All Loads" on the next page)

- List all loads assigned to load groups
- List all loads not assigned to load groups

You can use this information to identify all load groups, to identify the triggers associated with a load before removing it from the load group or editing its parameters, and to identify empty load groups, all unassigned loads, and so on.

The Switches dialog box is shown below.



Load Group Click ▼ and select one of the following from the drop-down list:

One load group:
The "Assigned Loads" box lists the loads in the load group. The "Assigned Triggers" box lists any triggers (switches or timers) that use the load group.

All Loads:
The "Assigned Loads" box lists all loads in the job. Click a load, and the "Assigned Triggers" box lists any triggers (switches or timers) that use the selected load. The "Assigned Load Groups" box lists all load groups that include the selected load.

Loads Assigned to Load Groups:
The "Assigned Loads" box lists all loads that have been assigned to a load group.

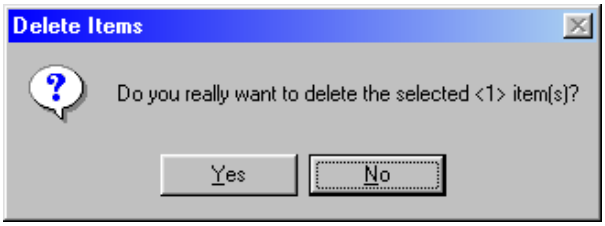
Loads Not Assigned to Load Groups:
The "Assigned Loads" box lists all loads that have NOT been assigned to a load group.

Click [**OK**] when you are finished viewing information to return to the Switch Properties dialog box.

Delete a Switch

You can design a custom keypad by deleting a switch or switches from a standard keypad design. The absolute button positions remain the same.

To delete a switch from a keypad, right-click the switch (a selected switch has a yellow border), and select **Delete** from the shortcut menu. The following message is displayed.

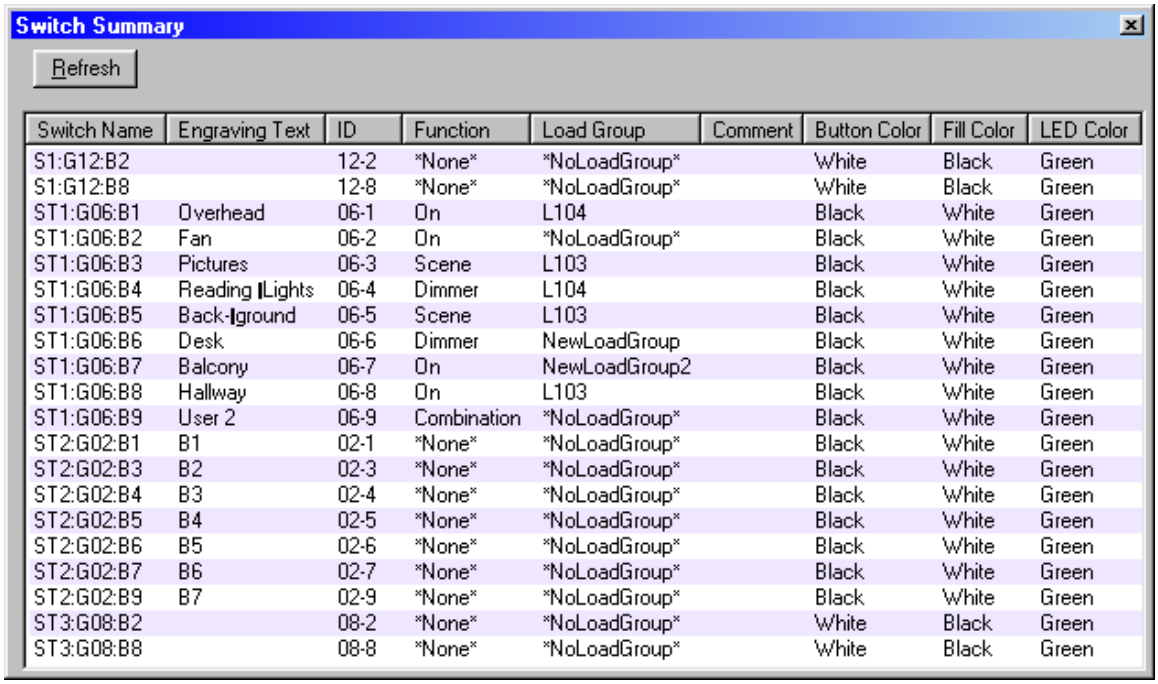


Click [**Yes**] to delete the switch or [**No**] if you do not want the switch deleted.

NOTE ☞ You cannot add a switch to a keypad. If you delete a switch in error, you can either delete the keypad and start over, or you can change the keypad type to a larger keypad to restore the switches.

Switch Summary

To show or hide the Switch Summary, pull down the View menu and click **Switch Summary**.



Switch Name	Engraving Text	ID	Function	Load Group	Comment	Button Color	Fill Color	LED Color
S1:G12:B2		12-2	*None*	*NoLoadGroup*		White	Black	Green
S1:G12:B8		12-8	*None*	*NoLoadGroup*		White	Black	Green
ST1:G06:B1	Overhead	06-1	On	L104		Black	White	Green
ST1:G06:B2	Fan	06-2	On	*NoLoadGroup*		Black	White	Green
ST1:G06:B3	Pictures	06-3	Scene	L103		Black	White	Green
ST1:G06:B4	Reading Lights	06-4	Dimmer	L104		Black	White	Green
ST1:G06:B5	Back-Iground	06-5	Scene	L103		Black	White	Green
ST1:G06:B6	Desk	06-6	Dimmer	NewLoadGroup		Black	White	Green
ST1:G06:B7	Balcony	06-7	On	NewLoadGroup2		Black	White	Green
ST1:G06:B8	Hallway	06-8	On	L103		Black	White	Green
ST1:G06:B9	User 2	06-9	Combination	*NoLoadGroup*		Black	White	Green
ST2:G02:B1	B1	02-1	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B3	B2	02-3	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B4	B3	02-4	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B5	B4	02-5	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B6	B5	02-6	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B7	B6	02-7	*None*	*NoLoadGroup*		Black	White	Green
ST2:G02:B9	B7	02-9	*None*	*NoLoadGroup*		Black	White	Green
ST3:G08:B2		08-2	*None*	*NoLoadGroup*		White	Black	Green
ST3:G08:B8		08-8	*None*	*NoLoadGroup*		White	Black	Green

The Switch Summary lists all keypad switches for the currently selected job. Switches are grouped by keypad. If you select a switch in the Stations view, the switch is highlighted in the Switch Summary list. If you select a keypad, all switches for that keypad are highlighted in the list.

If necessary, click **[Refresh]** to deselect any previously selected loads in the load list.

You can change the columns in the Switch Summary to better accommodate the data and fit your computer monitor, as follows:

Adjust Column Widths

To adjust column widths, move the mouse pointer to the space between column headings (e.g., Switch Name, Function, Load Group, etc.). The pointer changes to a double arrow. Click and hold down the mouse button. A column separator line appears. Continue to hold down the mouse button and drag the separator line to expand or contract the width of the column. You can drag the line all the way to the left to close up a column that you don't need. The changes are saved when you exit the program.

Move Columns You can arrange the columns in any order. To move a column, click and hold on a column heading and drag it to a different location.

Sort the List To sort the list, click a column heading to sort alphabetically or numerically by the items in the column. Click once to sort in ascending order; click again to sort in descending order.

Load and Programming Summary

To show or hide the Load and Programming Summary, pull down the View menu and click **Load and Programming Summary**.

You can use the Load and Programming Summary to do the following:

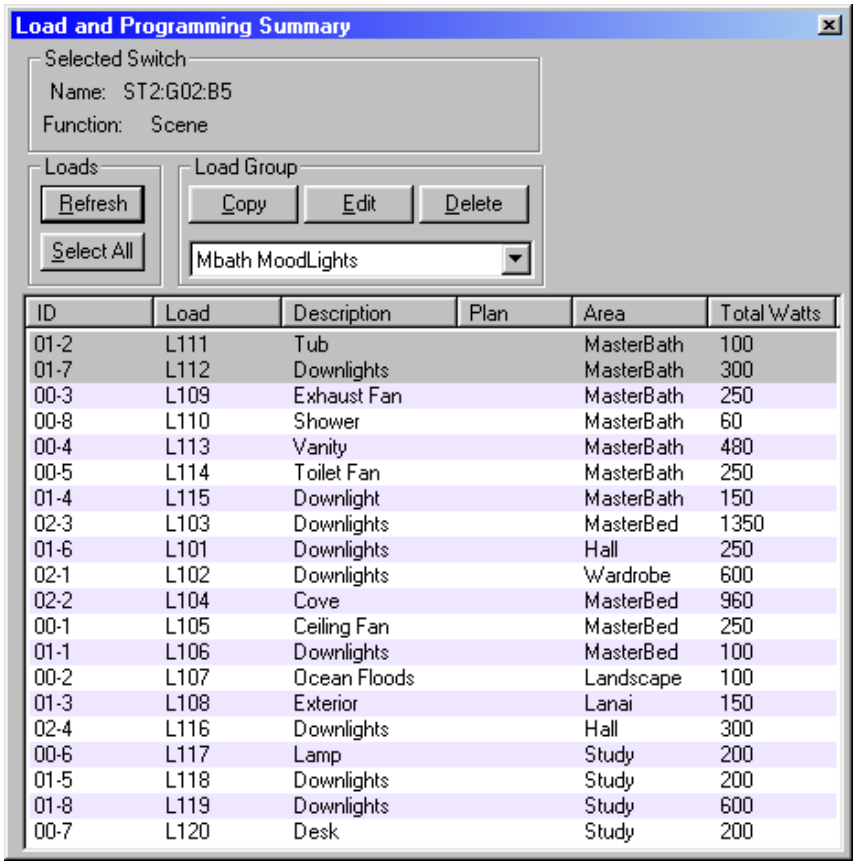
- Assign a load group to a switch on a keypad or to a timer
- Add a new load group
- Edit a load group
- Copy a load group
- Delete a load group

You can change the columns in the Load and Programming Summary to better accommodate the data and fit your computer monitor, as follows:

Adjust Column Widths To adjust column widths, move the mouse pointer to the space between column headings (e.g., ID, Load, Description, etc.). The pointer changes to a double arrow. Click and hold down the mouse button. A column separator line appears. Continue to hold down the mouse button and drag the separator line to expand or contract the width of the column. You can drag the line all the way to the left to close up a column that you don't need. The changes are saved when you exit the program.

Move Columns You can arrange the columns in any order. To move a column, click and hold on a column heading and drag it to a different location.

Sort the List To sort the list, click a column heading to sort alphabetically or numerically by the items in the column. Click once to sort in ascending order; click again to sort in descending order.


Load and Programming Summary
Selected Switch
Name: ST2:G02:B5
Function: Scene
Loads
Refresh
Select All
Load Group
Copy
Edit
Delete
Mbath MoodLights
ID Load Description Plan Area Total Watts
01-2 L111 Tub MasterBath 100
01-7 L112 Downlights MasterBath 300
00-3 L109 Exhaust Fan MasterBath 250
00-8 L110 Shower MasterBath 60
00-4 L113 Vanity MasterBath 480
00-5 L114 Toilet Fan MasterBath 250
01-4 L115 Downlight MasterBath 150
02-3 L103 Downlights MasterBed 1350
01-6 L101 Downlights Hall 250
02-1 L102 Downlights Wardrobe 600
02-2 L104 Cove MasterBed 960
00-1 L105 Ceiling Fan MasterBed 250
01-1 L106 Downlights MasterBed 100
00-2 L107 Ocean Floods Landscape 100
01-3 L108 Exterior Lanai 150
02-4 L116 Downlights Hall 300
00-6 L117 Lamp Study 200
01-5 L118 Downlights Study 200
01-8 L119 Downlights Study 600
00-7 L120 Desk Study 200

Assign or Change a Load Group

You can use “drag and drop” from the Load and Programming Summary to assign a load group to a switch or input or to change a switch’s load group.

1. Select a switch in the Stations view, and its name and function are displayed at the top of the summary. If a load group is already assigned to the selected switch, it is shown in the “Load Group” field, and all loads in the load group are highlighted at the top of the load list. If no load group has been assigned to the switch, “NoLoadGroup” is shown in the “Load Group” field.

2. Click ▼ at the “Load Group” field, and, from the drop-down list, select the load group you want to assign to the switch. The loads in the load group are highlighted at the top of the load list.

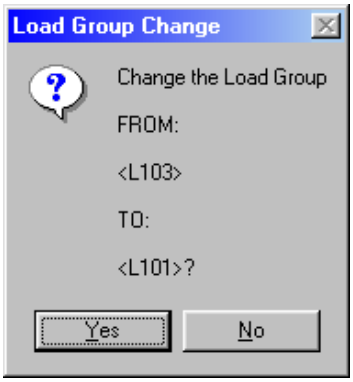
3. Click and hold the mouse button anywhere in the highlighted group of loads in the list and drag the mouse. The mouse pointer changes to .

4. Continue to hold down the mouse button, and drag the pointer to the switch. The pointer changes to as you move it over the switch.

5. Release the mouse button.

   If no load group was assigned to the switch, the selected load group is assigned, and the Switch Properties dialog box is displayed so you can set the switch properties (refer to “Edit a Switch” on page 107).

   If a load group was already assigned to the switch, the following prompt appears:

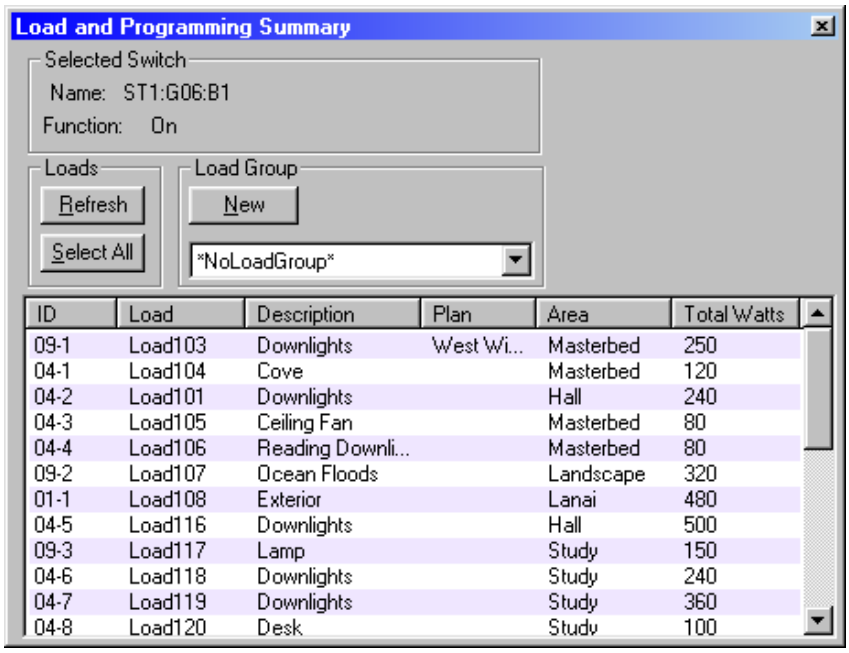


   Click [**Yes**] to change the switch’s load group, and the Switch Properties dialog box is displayed so you can edit the switch properties. Click [**No**] if you did not intend to change it.

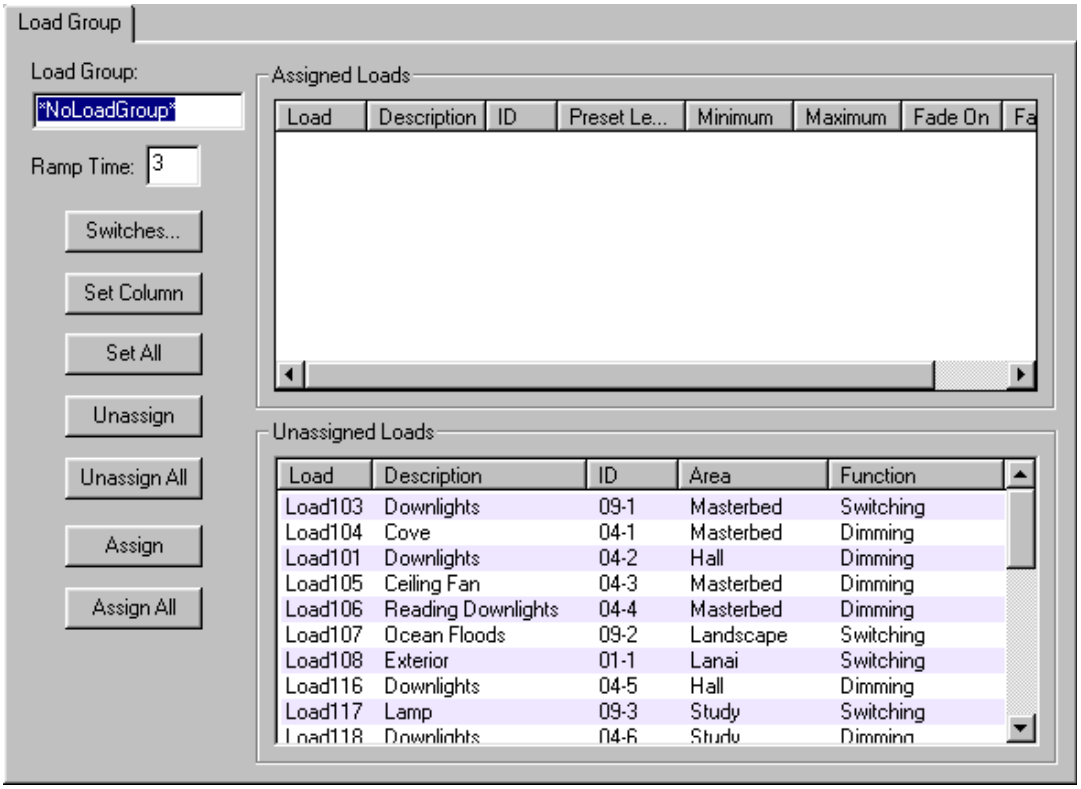
Add a Load Group

Do the following to add a new load group:

1. Click [**Refresh**] to deselect any previously selected loads in the load list. “NoLoadGroup” appears in the “Load Group” field, and a [**New**] button appears next to it.



2. Click [**New**] and the following dialog box is displayed.



NOTE ☞ Load group names can be up to 49 characters long. When the job is converted to a program file for upload to the CCU, load group names are truncated to 15 characters (for the 5000LC only). LiteWare 3.8 automatically creates unique load group names of 15 characters.

3. Type over the "NoLoadGroup" label to enter a new load group name.

4. All available loads are listed in the "Unassigned Loads" box. Use the scroll bar on the right to move through the load list. To assign a single load to the load group, click the load to select it, then click [**Assign**], or double-click the load. To select several consecutive loads, press and hold **<Shift>**, then click the first and last loads in the group you want to select. To select several non-consecutive loads, press and hold **<Ctrl>**, then click each load that you want to select. The load or loads are added to the "Assigned Loads" list.

   To assign all unassigned loads to the load group, click [**Assign All**].

5. To remove a load from the "Assigned Loads" list, click it to select it and then click [**Unassign**]. To unassign all loads from the load group, click [**Unassign All**].

6. Set the ramp time, dimmer levels, fade levels, and preset/minimum turn-on levels for the loads as required. Refer to "Set Parameters" on page 138 for information.

7. Click [**OK**] to create the load group and exit the dialog box.

8. For information on assigning the new load group to a switch or input, refer to the previous section, "Assign or Change a Load Group" on page 144.

Edit a Load Group

To edit a switch's load group, click the switch in the Stations view, and its name and function are displayed at the top of the summary. The load group assigned to the selected switch is shown in the "Load Group" field, and all loads in the load group are highlighted at the top of the load list.

To edit any load group, click ▼ at the "Load Group" field, and select the load group you want to edit from the drop-down list. The loads in the load group are highlighted at the top of the load list.

Click [**Edit**] and the Load Group Properties dialog box opens with the selected load group displayed. Refer to "Load Group Tab" on page 136 for information on the load group options and functions.

Copy a Load Group

To make a copy of a switch's load group, click the switch in the Stations view, and its name and function are displayed at the top of the summary. The load group assigned to the selected switch is shown in the "Load Group" field, and all loads in the load group are highlighted at the top of the load list.

To make a copy of any load group, click ▼ at the "Load Group" field, and select the load group you want to copy from the drop-down list. The loads in the load group are highlighted at the top of the load list.

Click [**Copy**] and the Load Group Properties dialog box opens with the selected load group displayed. Refer to "Load Group Tab" on page 136 for information on the load group options and functions.

An exact copy of the load group is made with "copy of" added to the beginning of the name. At the "LoadGroup" field, type over the default load group name to enter a new load group name.

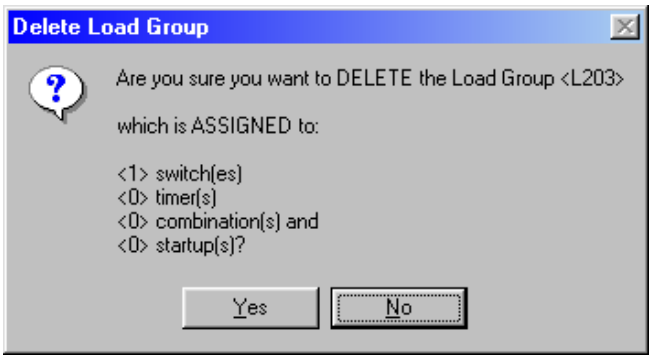
Delete a Load Group

You can delete load groups that are no longer needed. Deleting a load group has no effect on the loads or on other load groups.

To delete a load group assigned to a switch, click the switch in the Stations view, and its name and function are displayed at the top of the summary. The load group assigned to the selected switch is shown in the "Load Group" field, and all loads in the load group are highlighted at the top of the load list.

To delete any load group, click ▼ at the "Load Group" field, and select the load group you want to delete from the drop-down list. The loads in the load group are highlighted at the top of the load list.

Click [**Delete**]. If the load group is assigned to any switches, timers, combinations, or startup events, the following prompt is displayed.



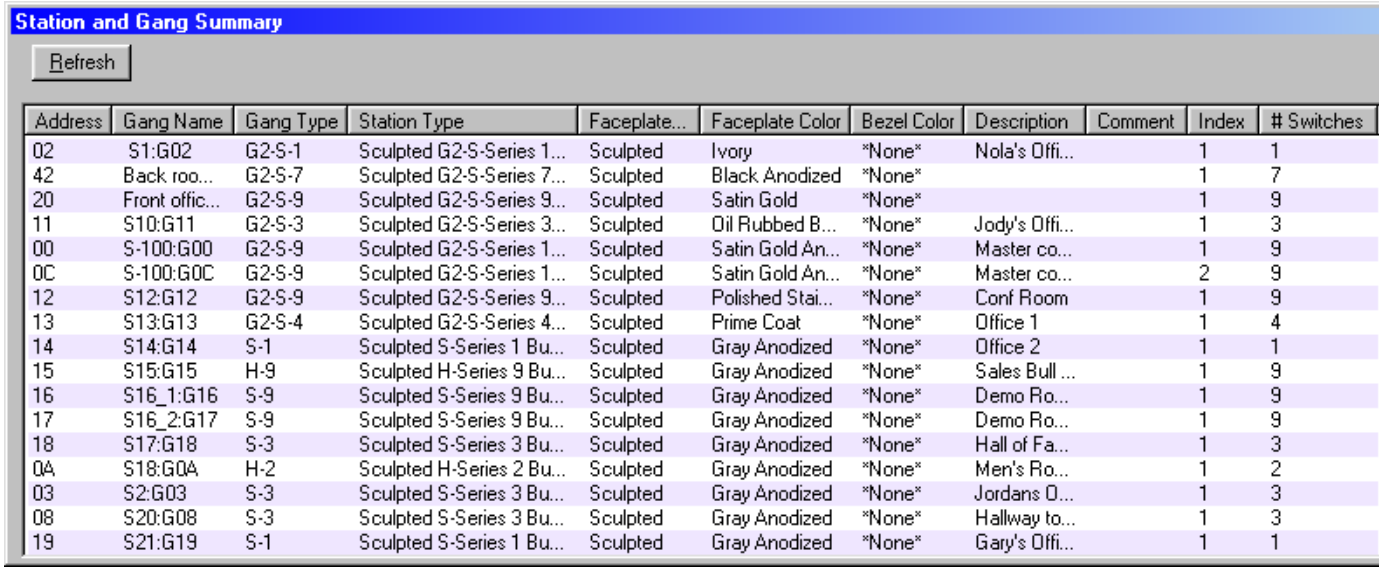
If you delete the load group, it is removed from the inputs to which it is assigned, and you must assign new load groups. Click **[Yes]** to delete the load group. Click **[No]** if you did not intend to delete it.

If the load group is unassigned, the following prompt is displayed.

Click **[Yes]** to delete the load group. Click **[No]** if you did not intend to delete it.

Station and Gang Summary

To show or hide the Station and Gang Summary, pull down the View menu and click **Station and Gang Summary**.



Address	Gang Name	Gang Type	Station Type	Faceplate...	Faceplate Color	Bezel Color	Description	Comment	Index	# Switches
02	S1:G02	G2-S-1	Sculpted G2-S-Series 1...	Sculpted	Ivory	*None*	Nola's Offi...		1	1
42	Back roo...	G2-S-7	Sculpted G2-S-Series 7...	Sculpted	Black Anodized	*None*			1	7
20	Front offic...	G2-S-9	Sculpted G2-S-Series 9...	Sculpted	Satin Gold	*None*			1	9
11	S10:G11	G2-S-3	Sculpted G2-S-Series 3...	Sculpted	Oil Rubbed B...	*None*	Jody's Offi...		1	3
00	S-100:G00	G2-S-9	Sculpted G2-S-Series 1...	Sculpted	Satin Gold An...	*None*	Master co...		1	9
0C	S-100:G0C	G2-S-9	Sculpted G2-S-Series 1...	Sculpted	Satin Gold An...	*None*	Master co...		2	9
12	S12:G12	G2-S-9	Sculpted G2-S-Series 9...	Sculpted	Polished Stai...	*None*	Conf Room		1	9
13	S13:G13	G2-S-4	Sculpted G2-S-Series 4...	Sculpted	Prime Coat	*None*	Office 1		1	4
14	S14:G14	S-1	Sculpted S-Series 1 Bu...	Sculpted	Gray Anodized	*None*	Office 2		1	1
15	S15:G15	H-9	Sculpted H-Series 9 Bu...	Sculpted	Gray Anodized	*None*	Sales Bull ...		1	9
16	S16_1:G16	S-9	Sculpted S-Series 9 Bu...	Sculpted	Gray Anodized	*None*	Demo Ro...		1	9
17	S16_2:G17	S-9	Sculpted S-Series 9 Bu...	Sculpted	Gray Anodized	*None*	Demo Ro...		1	9
18	S17:G18	S-3	Sculpted S-Series 3 Bu...	Sculpted	Gray Anodized	*None*	Hall of Fa...		1	3
0A	S18:G0A	H-2	Sculpted H-Series 2 Bu...	Sculpted	Gray Anodized	*None*	Men's Ro...		1	2
03	S2:G03	S-3	Sculpted S-Series 3 Bu...	Sculpted	Gray Anodized	*None*	Jordans O...		1	3
08	S20:G08	S-3	Sculpted S-Series 3 Bu...	Sculpted	Gray Anodized	*None*	Hallway to...		1	3
19	S21:G19	S-1	Sculpted S-Series 1 Bu...	Sculpted	Gray Anodized	*None*	Gary's Offi...		1	1

The Station and Gang Summary lists information about each keypad, including gang data, keypad type. and face-plate style and color for the currently selected job.

For keypads that have multiple gangs, a separate line is added to the summary to describe each gang.

In the Station view, select a keypad or gang in the Station and Gang Summary pane, and the selected keypad is outlined in the Stations view. Or select a keypad or gang in the Stations view to highlight it in the Station and Gang Summary.

If you have made any changes to gang or keypad information since starting the LiteWare session, click **[Refresh]** to update the information.

You can change the columns in the Station and Gang Summary to better accommodate the data and fit your computer monitor, as follows:

Adjust Column Widths To adjust column widths, move the mouse pointer to the space between column headings (e.g., Address, Gang Name, Gang Type, Station Type, etc.). The pointer changes to a double arrow. Click and hold down the mouse button. A column separator line appears. Continue to hold down the mouse button and drag the separator line to expand or contract the width of the column. You can drag the line all the way to the left to close up a column that you don't need. The changes are saved when you exit the program.

Move Columns You can arrange the columns in any order. To move a column, click and hold on a column heading and drag it to a different location.

Sort the List To sort the list, click a column heading to sort alphabetically or numerically by the items in the column. Click once to sort in ascending order; click again to sort in descending order.

Print a Station Design Schedule

A station design schedule is a report that contains a graphic of each keypad and its buttons and lists the attributes, function, load group assignments, and parameters for each button.

To view the station design schedule for the job before printing it, click on the toolbar, or select **Print Preview** from the File menu.

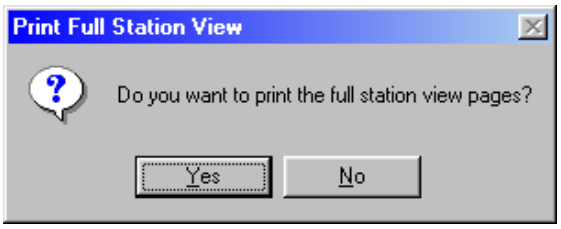
To print a station design schedule for the job, click on the toolbar, or select **Print** from the File menu. A standard Windows Print dialog box is

displayed. If necessary, select the printer and specify the page range and number of copies. Click **[OK]** to print the schedule.

The following prompt is displayed.

If you want to include only style and location information about the keypads, click **[Yes]**, and only one page is printed for each keypad. If you want to include both style/location information and button programming detail, select **[No]** to print the full report.

The following prompt is displayed.



If you want to include the full station view, click **[Yes]**. If you want to print only the design schedules, click **[No]**.

To print a schedule for one keypad, right-click on the keypad, and select **Print** from the shortcut menu.

To print schedules for two or more keypads, hold down the **<Ctrl>** key and click each keypad that you want to select. All selected keypads are outlined with yellow. Right-click and select **Print** from the shortcut menu.

Notes

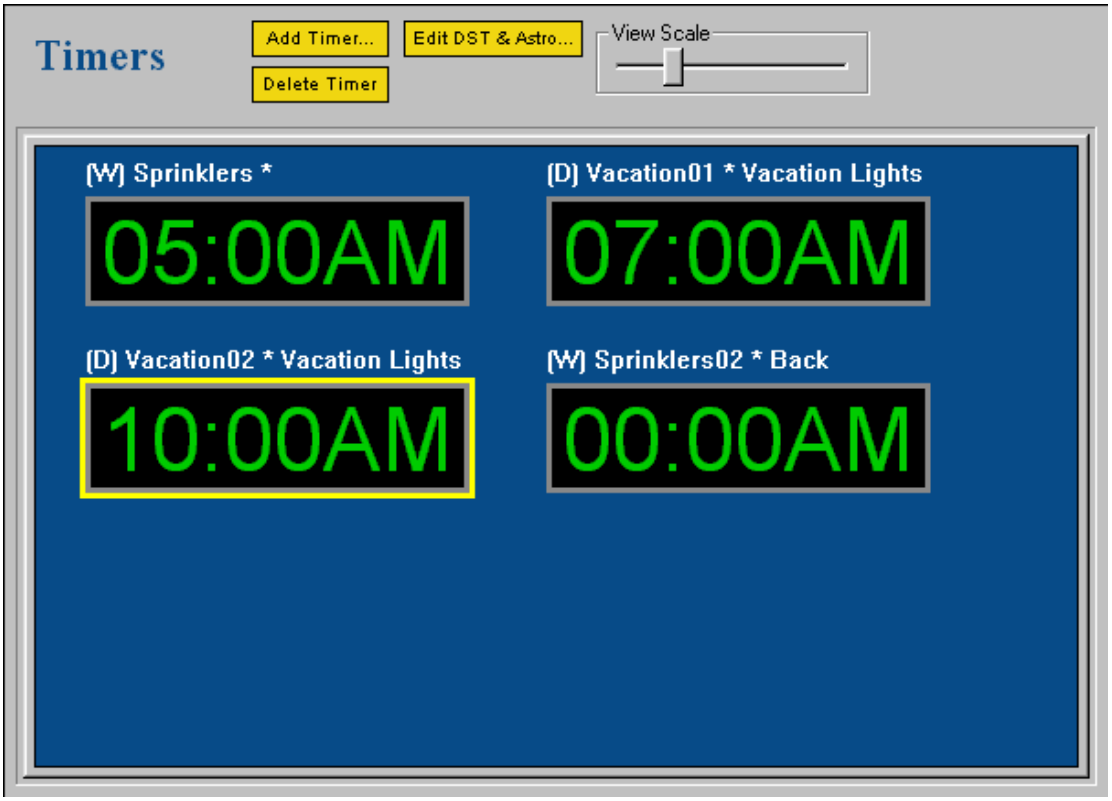
Timers 10

This chapter provides information on the following functions performed in the Timers view:

- Add a timer
- Configure a timer (interval, duration, and timing method (clock or sunrise/sunset)
- Specify the function the timer performs (on, off, on/off, scene on, or user)
- Specify the load group controlled by the timer
- Delete a timer
- Enter/edit Daylight Savings Time and astronomical settings

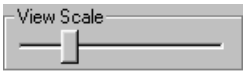
LiteTouch timers can be executed at a specified clock time or they can be set up to execute at sunrise and sunset (using LiteTouch's astronomical time capabilities). A duration may also be entered, defining both a start time and a stop time for the timer.

Click [**Timers**] on the view selection bar and the Timers view is displayed. The following illustration shows the Timers view with timers added.



Timers are arranged in the order they are added.

View Scale



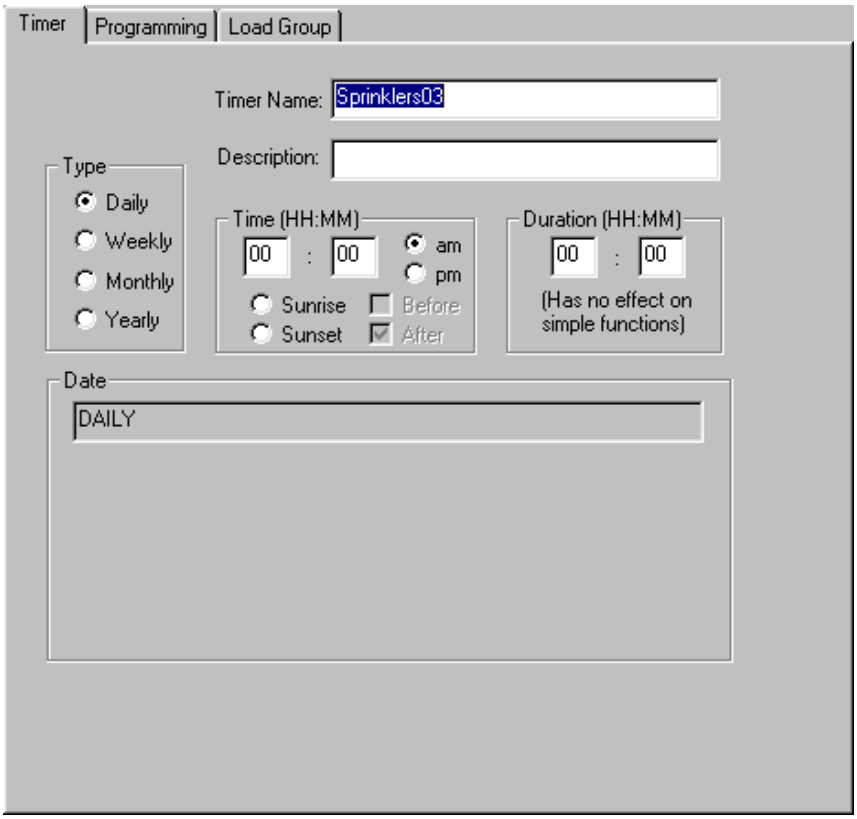
You can change the scale of magnification in the Timers view by sliding the horizontal bar left for a smaller scale and right for a larger scale. The new view scale is used until you change it again (even if you change views, change jobs, or exit and reopen LiteWare).

Add a Timer

To add a timer, click [**Add Timer**] button, or right-click anywhere in the Timers view, and select **Add** from the shortcut menu.

Timer Tab

The options in the Timer tab are used to configure the timer. If it is not already selected, click the **Timer** tab.



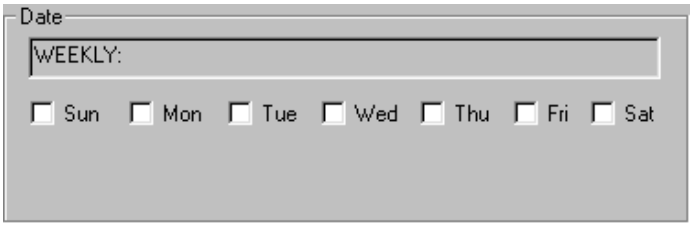
Timer Name Enter a name or identifier for the timer (e.g., T1, Timer 1, etc.). The name is used to identify the timer on the timers schedule report and is listed above the timer in the Timers view.

Description Enter a description of the timer (e.g., sprinklers, driveway, garden, pool, etc.). The description appears on the timers schedule report and is listed above the timer in the Timers view.

Type Select the interval of occurrence of the timer events: **Daily**, **Weekly**, **Monthly**, or **Yearly**.

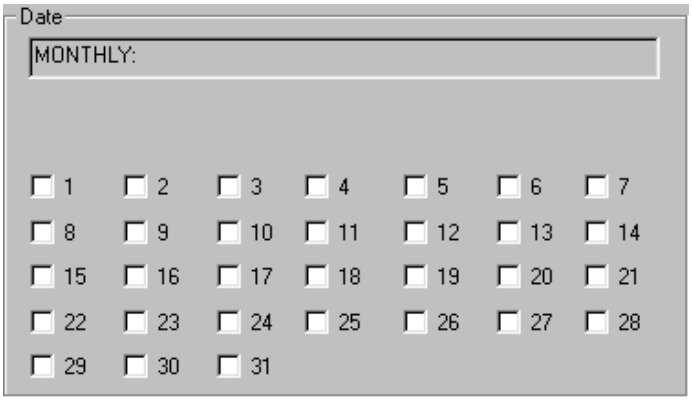
If you select “Daily,” no additional fields appear. Set up the time and/or duration (see page 157) of the event.

If you select “Weekly,” the following table appears:



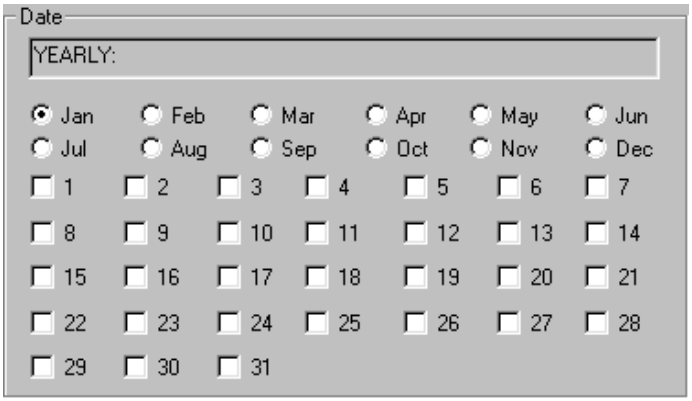
Select each day of the week on which the timer event is to occur.

If you select “Monthly,” the following table appears:



Select each day of the month on which the timer event is to occur.

If you select “Yearly,” the following table appears:



First select a month to be included in the schedule, then select each day of that month on which the timer event is to occur. Do the same for each month in which the timer event is to occur.

Time If the timer is based on a standard clock, enter the time each day that the event is to begin. In the first box, type the hour (e.g., type **05** for five o'clock, **10** for ten o'clock, etc.). Click in the second box, and type the minutes after the hour (e.g., 05, 30, 45, etc.). Then click "**am**" or "**pm**."

Sunrise/Sunset The LiteTouch controller supports timers based on astronomical time, allowing you to link an event's starting time to sunrise or sunset seasonally adjusted to the location. Astronomical time is based on your entries in the Edit DST and Astronomical Settings dialog box (refer to "Edit DST and Astronomical Settings" on page 169 for information).

Select **Sunrise** or **Sunset**. Then set up the time before or after sunrise or sunset for the event to start using the following options:

Before/After
Indicate whether you want the event to start "before" or "after" sunrise or sunset. If you want it to start right at sunrise/sunset, select either one, and enter "00" in the "Time" boxes.

Time
Enter the number of hours and minutes before or after sunrise or sunset that you want the timer event to begin.

For example, if you want the event to begin 30 minutes after sunset, click **Sunset**, click **After**, enter **00** in the hour "Time" box, and enter **30** in the minute "Time" box. If you want the event to begin one hour 30 minutes before sunrise, click **Sunrise**, click **Before**, enter **01** in the hour "Time" box, and enter **30** in the minute box.

Duration
If you are setting up a timer for an On/Off function, you can use the "Duration" field to define the length of the event, or you can create a second timer to end the event (e.g., use the On function to turn lights on at sunset and the Off function to turn lights off at sunrise).

NOTE ☞ To deselect sunrise or sunset, click "am" or "pm."

Duration (Applies to On/Off and User functions only) Enter the duration of the event in hours and minutes. If, for example, the event is to last two hours, thirty minutes, type **02** in the first box and **30** in the second box.

Programming Tab

Click the **Programming** tab to select the function of the timer. The function determines the action performed when the timer turns on or off. Refer to the sections under "5000LC" below for information on timer functions for the 5000LC CCU. Refer to "Standard/Compact" on page 162 for information on timer functions for the Standard or Compact CCU.

5000LC

At the "Function" field, click ▼ and select a function from the drop-down list. The options available in the Programming tab vary with the function selected. Most functions require minimal configuration, while others, such as "User," typically require special programming.

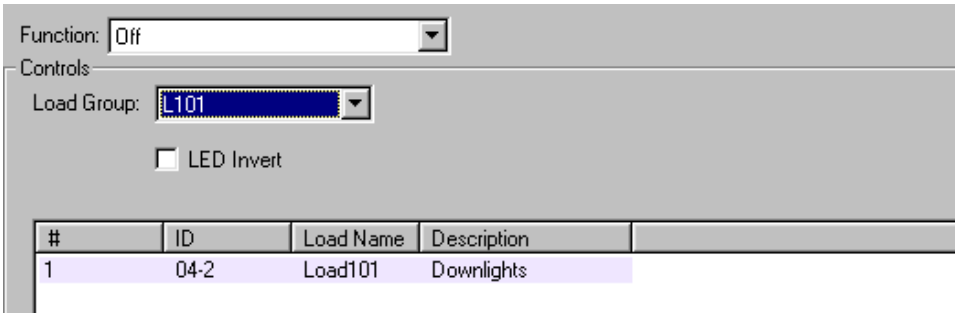
NOTE ☞ Most functions require that a load group be assigned to the timer. The Load Group tab is used to create or edit load groups. Refer to "Load Group Tab (5000 LC)" on page 163 for information.

The following sections describe each available function on the 5000LC and the parameters used to define it.

Off

The Off function represents a discreet "off" value. This function is paired with the On function. The timer for the On function turns the load group on; the timer for the Off function turns it off.

When you select the **Off** function, the following options are displayed in the Programming tab.



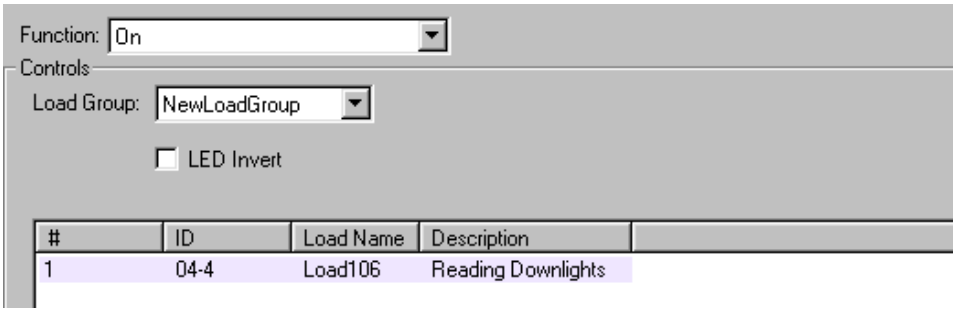
Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed.

LED Invert Select this option if you want to reverse the LED action for the function.

On

The On function represents a discreet "on" value. This function is paired with the Off function. The timer for the On function turns the load group on; the timer for the Off function turns it off.

When you select the **On** function, the following options are displayed in the Programming tab.

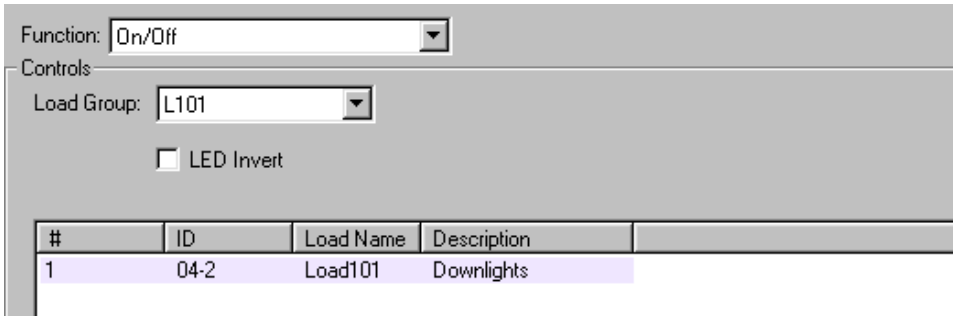


Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed.

LED Invert Select this option if you want to reverse the LED action for the function.

On/Off The On/Off function represents discreet on and off values. At the designated time, the timer turns the load group on. At the end of the specified duration, the timer turns the load group off.

When you select the **On/Off** function, the following options are displayed in the Programming tab.

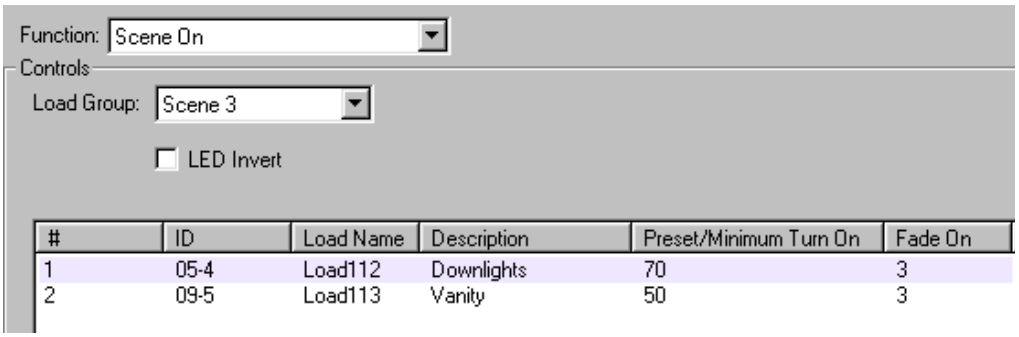


Load Group Click ▼ and select a load group from the drop-down list. The loads in the selected load group are listed.

LED Invert Select this option if you want to reverse the LED action for the function.

Scene On The Scene On function is used to define a scene that can be turned on (fades on to scene levels) but cannot be turned off with the same timer. The scene must be turned off using a different timer or switch.

When you select the **Scene On** function, the following options are displayed in the Programming tab.


Function: Scene On
Controls
Load Group: Scene 3
LED Invert
ID Load Name Description Preset/Minimum Turn On Fade On
1 05-4 Load112 Downlights 70 3
2 09-5 Load113 Vanity 50 3

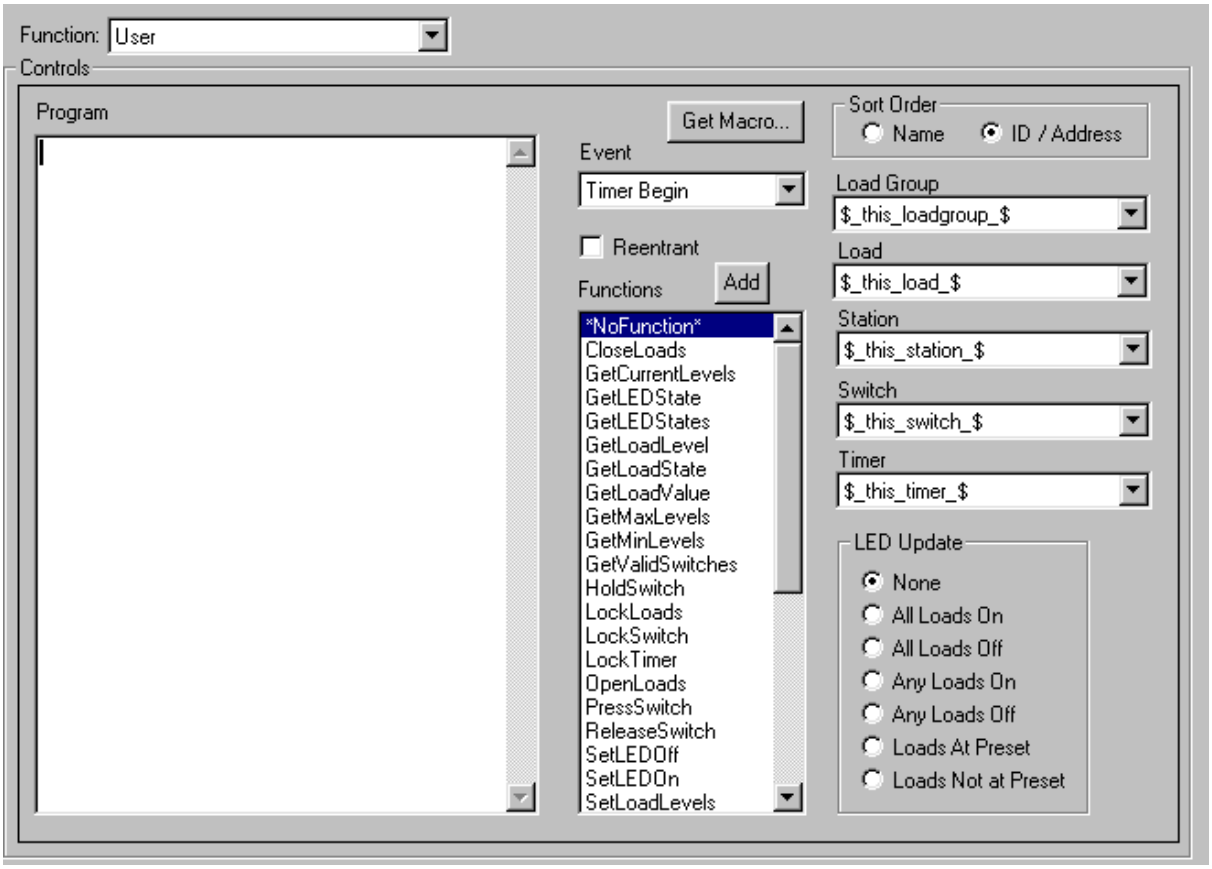
Load Group Click and select a load group from the drop-down list. The loads in the selected load group are listed.

LED Invert Select this option if you want to reverse the LED action for the function.

User The User function is used to create a program with custom (user) instructions. A user program can be as simple or as complex as you require and can execute any action (or series of actions) supported by the CCU.

You can assign a User function to a timer or switch. When assigned to a timer, it can execute separate instructions for the timer's start (timer begin) or stop (timer end) actions. (A stop action is not executed unless a duration is specified.) When assigned to a switch, the user program can execute separate instructions for press, hold, or release actions.

When you select the **User** function, the following options are displayed in the Programming tab.



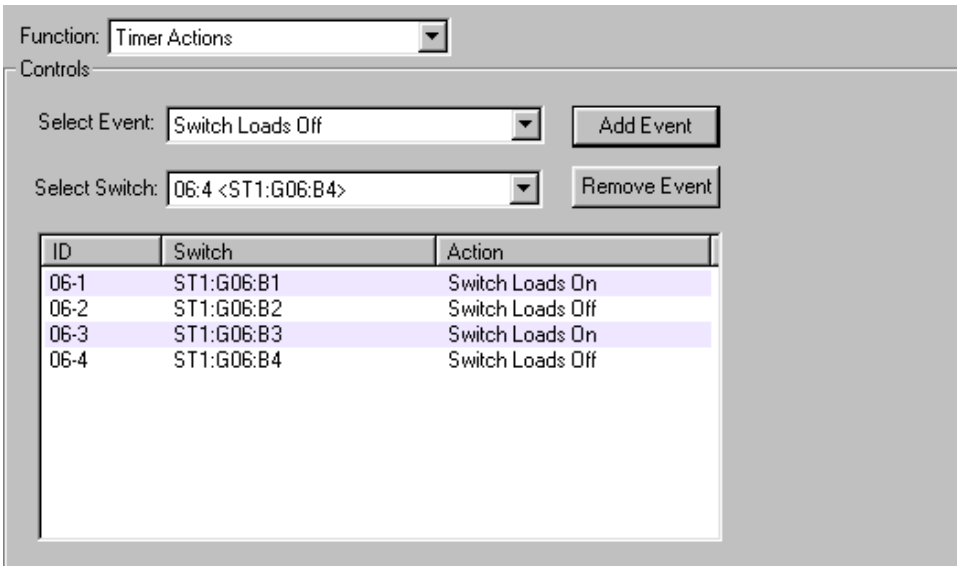
Event Select the event to be executed by the program, **Timer Begin** or **Timer End**.

The remaining options are used to create the user program. The program is then displayed in the Program box. For instructions, refer to Chapter 12, “5000LC Programming” beginning on page 181.

The **[Get Macro]** button is used to import a macro program. A macro is a file containing a pre-defined program. For information on macros, refer to Chapter 13, “5000LC Macros” on page 205.

Standard/Compact

To program a timer for a Standard/Compact CCU, at the "Function" field, click ▼ and select **Timer Actions** from the drop-down list. The following dialog box is displayed.



You define events for each timer. Each event has an on or off action. However, rather than selecting a load group for each event, you select a switch, and the action applies to the load or loads associated with the switch. So each event consists of an action assigned to a switch.

Do the following to add an event to a timer:

1. At the "Select Event" field, click ▼ and select either **Switch Loads Off** or **Switch Loads On**.

2. At the "Select Switch" field, click ▼ and select the switch that you want to assign to the action. The loads associated with the switch will be turned on or off at the specified time.

3. Click [**Add Event**] to add the event to the list.

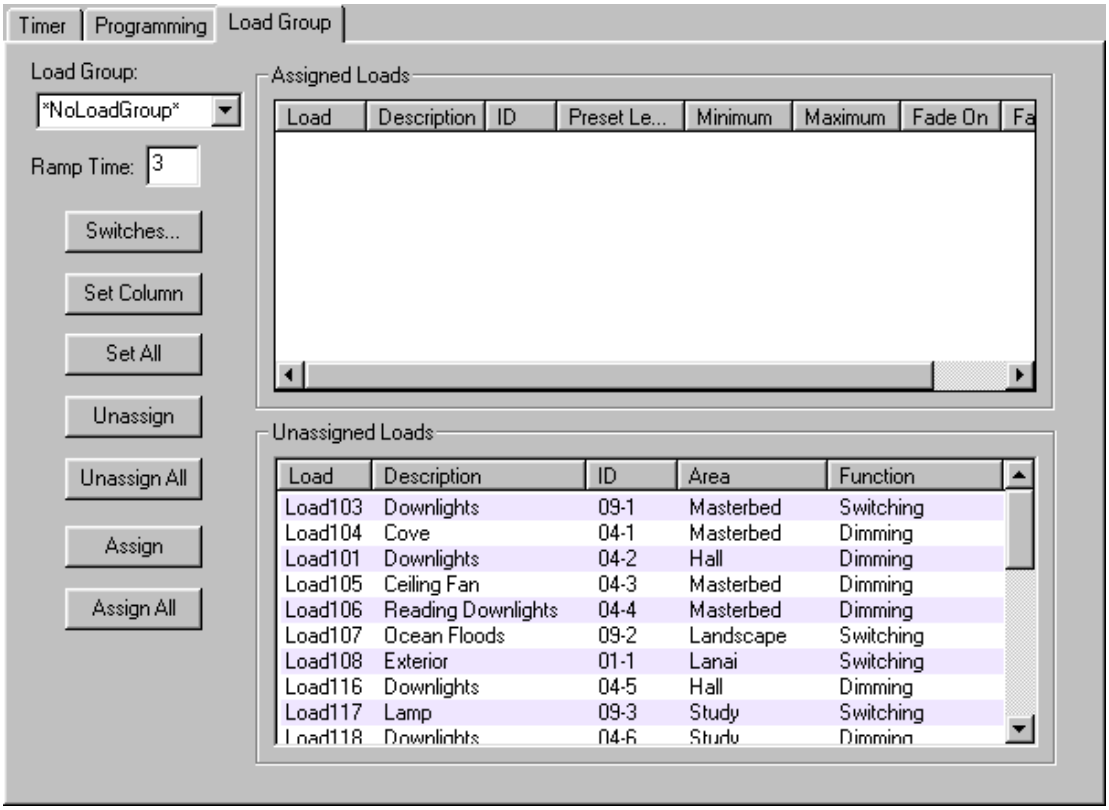
4. In the same manner, continue to add events to the timer as required.

To remove an event from the list, click the event in the list to select it, then click [**Remove Event**].

Load Group Tab (5000 LC)

Load groups are assigned to timer functions for the 5000LC only. (You select events and switches for timers on Standard and Compact CCUs; refer to "Standard/Compact" on page 162.) A load group is a group of loads (and their parameters) used together in one timer. LiteWare 3.8 uses load groups to make load management easier. A load group may consist of a single load, several loads, or all loads in the load list. In addition, a load may belong to any number of load groups, and one load group can be assigned to more than one timer.

Click the **Load Group** tab to create or edit a load group.



Add a Load Group

Do the following to add a new load group:

1. If you have not yet created any load groups, "NoLoadGroup" is selected at the "Load Group" field. If you have created load groups, and you want to create a load group similar to an existing one, click ▼ and select the load group from the drop-down list, or select "NoLoadGroup" if you want to start with an "empty" load group. Type over the selected load group name to enter a new load group name.

NOTE ☞ Load group names can be up to 49 characters long. When the job is converted to a program file for upload to the CCU, load group names are truncated to 15 characters (for the 5000LC only). LiteWare 3.8 automatically creates unique load group names of 15 characters.

NOTE ☞ If you make changes to an existing load group (without changing the name), you change it for all switches and timers in the database to which it has been assigned. If you do not want to change the existing load group, make sure you type a new name.

2. All loads that have not yet been assigned to the load group are listed in the "Unassigned Loads" box. Use the scroll bar on the right to move through the load list. To assign a single load to the load group, click the load to select it, then click [**Assign**], or double-click the load. To select several consecutive loads, press and hold **<Shift>**, then click the first and last loads in the group you want to select. To select several non-consecutive loads, press and hold **<Ctrl>**, then click each load that you want to select. The load or loads are added to the "Assigned Loads" list.

   To assign all unassigned loads to the load group, click [**Assign All**].

NOTE ☞ To change the order in which either list of loads is sorted, click a column heading (e.g., Load, Description, ID, etc.) to sort alphabetically or numerically by the items in the column. Click once to sort in ascending order; click again to sort in descending order.

3. To remove a load from the "Assigned Loads" list, click it to select it and then click [**Unassign**]. To unassign all loads from the load group, click [**Unassign All**].

4. Set the ramp time, dimmer levels, fade levels, and preset/minimum turn-on levels for the loads as required. Refer to the next section for information.

Set Parameters

After you assign the loads to a load group, you can change the default ramp time, dim levels, fade levels, and preset/minimum turn-on levels for the loads as required. Though the parameters for a load group will vary depending on the function, possible parameters include:

- ramp time for the load group
- minimum turn on/preset level per load
- minimum dim level per load

- maximum dim level per load
- fade on time per load
- fade off time per load

NOTE ☞ If you change the parameters for a load group, they are changed for all switches and timers to which the load group is assigned. If you require the same loads with different parameters, you must create a new load group.

Ramp Time (Dimmer function only) Enter the amount of time (in seconds) that it will take to go from the minimum dim level to the maximum dim level (and vice versa). This setting applies to all loads in the load group. The minimum and maximum levels for each load are entered in the assigned load list.

The following parameters are in columns in the "Assigned Loads" box. To edit a parameter, click in the parameter's table cell for the load you want to edit, then click again to get an edit box and cursor. (To see a complete column heading, click on the border between column headings, hold down the mouse button, and drag the column border.)

Description The load description is displayed. You can change it here if necessary.

ID The assigned load address is displayed for reference and cannot be changed.

Preset Level/Minimum Turn-On Level If the load group is for a scene, enter the preset level (where 0 is no light and 100 is full brightness). For other functions, enter the minimum turn-on level for the load. Normally a load will turn on to the last known level, but if the last level is lower than the minimum entered here, this value will be used instead.

Minimum (Dimmer function only) Enter the minimum dim value for the load when ramping.

Maximum (Dimmer function only) Enter the maximum dim value for the load when ramping.

Fade On Enter the number of seconds that the fade-on should last. This is the time from initial "turn on" until the preset, last known, or minimum turn-on level is reached.

Fade Off Enter the number of seconds that the fade-off should last. This is the time from the "on" state to the "off" state.

[Set Column] To set a parameter to the same value for all loads in the load group, enter the parameter's value in the table, then click **[Set Column]**.

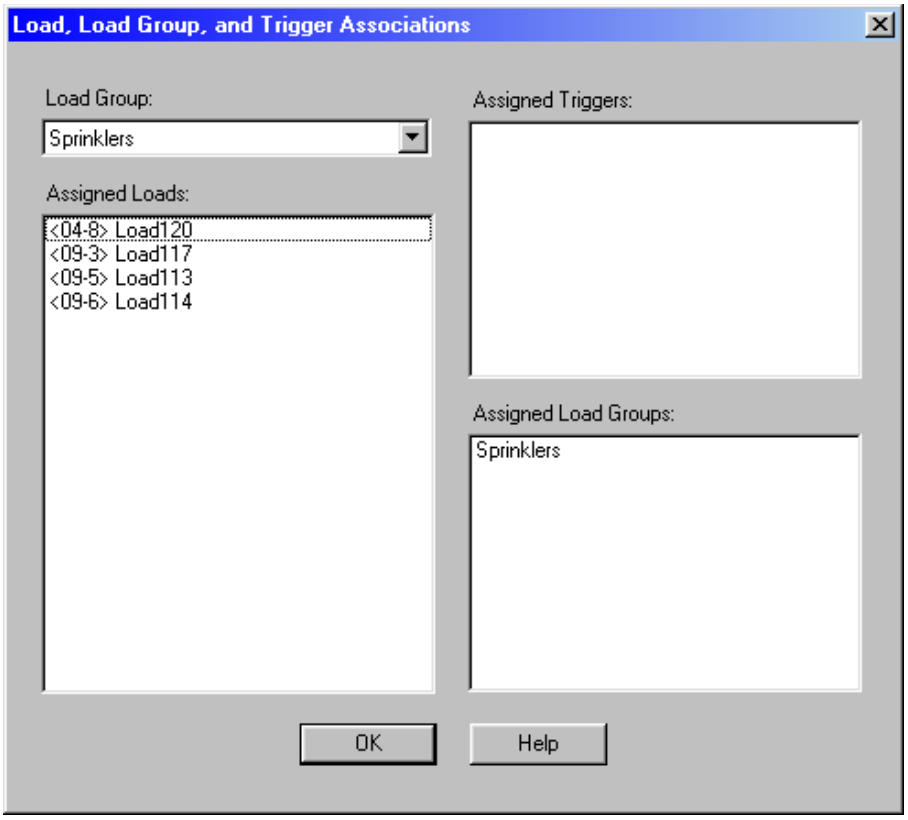
[Set All] To set all parameters to the same values for all loads in the load group, enter all parameters' values for one load. Then, with that load selected, click **[Set All]**.

Timer/Switch Information

Click **[Switches]** to display information about the association between loads, load groups, and triggers. You can do the following:

- View the loads and triggers (switches and timers) used by a load group
- Identify all load groups to which a load belongs and which triggers use the load (see "All Loads" on the next page)
- List all loads assigned to load groups
- List all loads not assigned to load groups

You can use this information to identify all load groups, to identify the triggers associated with a load before removing it from the load group or editing its parameters, and to identify empty load groups, all unassigned loads, and so on. The Switches dialog box is shown below.



Load Group Click and select one of the following from the drop-down list:

One load group:
If you select a specific load group, the "Assigned Loads" box lists the loads in the load group. The "Assigned Triggers" box lists any triggers (switches or timers) that use the load group.

All Loads:
If you select **All Loads**, the "Assigned Loads" box lists all loads in the job. Click a load, and the "Assigned Triggers" box lists any triggers (switches or timers) that use the selected load. The "Assigned Load Groups" box lists all load groups that include the selected load.

Loads Assigned to Load Groups:
If you select **Loads Assigned to Load Groups**, the "Assigned Loads" box lists all loads that have been assigned to a load group.

Loads Not Assigned to Load Groups:
If you select **Loads Not Assigned to Load Groups**, the "Assigned Loads" box lists all loads that have NOT been assigned to a load group.

Click **[OK]** when you are finished viewing information to return to the Timer Properties dialog box.

Edit a Timer

To edit a timer, right-click the timer (a selected timer has a yellow border), and select **Edit** from the shortcut menu. The Timer Properties dialog box is displayed. Refer to the previous section, "Add a Timer" beginning on page 155, for information on the options.

Copy a Timer

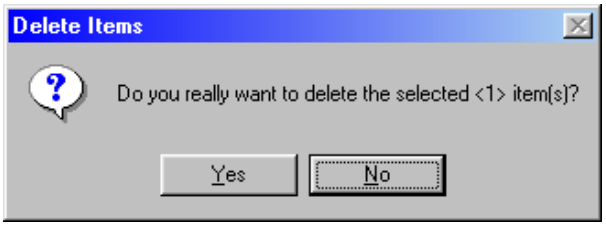
If you want to add a timer that is similar to an existing timer, you can make a copy of the existing timer to use as a starting point to create the new timer.

Right-click on the timer to be copied and select **Copy** from the shortcut menu. Right-click outside the timer in the blue background area and select **Paste** from the shortcut menu. The new timer is pasted at the end of the list of timers.

The new timer is given the same name as the copied timer but with the words “copy of” added. Edit the new timer as required.

Delete a Timer

To delete a timer, click the timer to select it (a selected timer has a yellow border). Click the **[Delete Timer]** button, or right-click the timer and select **Delete** from the shortcut menu. The following message is displayed.



Click **[Yes]** to delete the timer or **[No]** if you do not want the timer deleted.

To select multiple timers for deletion, press and hold the **<Ctrl>** key and click each timer that you want to delete. All selected timers are outlined with yellow. Click the **[Delete Timer]** button, or right-click and select **Delete** from the shortcut menu. A message asks if you really want to delete the selected items (the number of items is shown). Click **[Yes]** to delete the timers.

Print a Timer Schedule

A timer schedule is a report that lists, in a table format, the description, function, load group, load number, address, levels, and timer specifications for each timer.

To print a timer schedule for the job, click on the toolbar, or select **Print** from the File menu. Click on the toolbar, or select **Print Preview** from the File menu, to view the report before printing it.

To print a schedule for one timer, right-click on the timer, and select **Print** from the shortcut menu.

To print schedules for two or more timers, hold down the **<Ctrl>** key and click each timer that you want to select. All selected timers are outlined with yellow. Right-click and select **Print** from the shortcut menu.

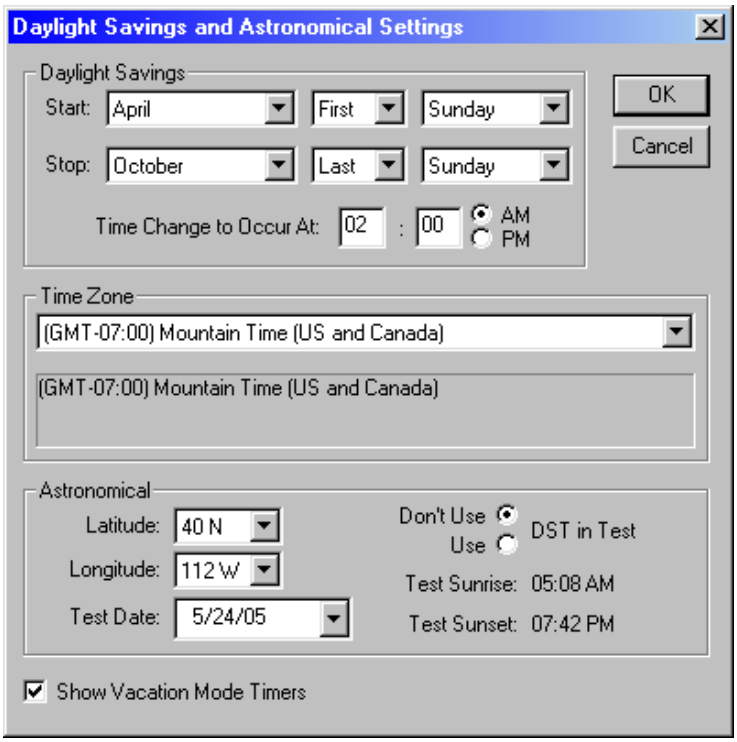
When you select **Print**, a standard Windows Print dialog box is displayed. If necessary, select the printer and specify the page range and number of copies. Click **[OK]** to print the schedule.

Edit DST and Astronomical Settings

The **[Edit DST and Astro...]** button in the Timer view is used to open a dialog box to set up the following:

- Daylight savings time (5000LC only)
- Time zone
- Longitude/latitude for the astronomical timer

Click [**Edit DST and Astro**...] and the following dialog box is displayed.



Daylight Savings (5000LC)

Use the following options to set up daylight savings time on the 5000LC CCU so that your timers will automatically change to daylight savings time settings when applicable.

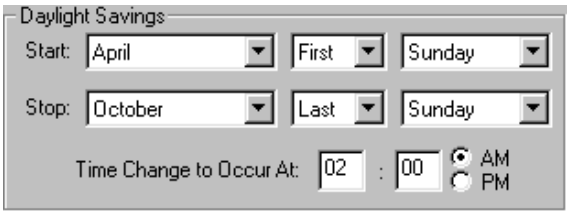
NOTE ☞ The Standard and Compact CCUs do not adjust automatically to DST. You can turn daylight savings time on or off manually in the CCU Global Settings dialog box in Job Parameters (see "Switch/LED Invert," "Daylight Savings" on page 52 for information).

Start In the first box, click ▼ and select the month that daylight savings time begins. In the second box, click ▼ and select whether daylight savings time begins on the "first," "last," "second," "third," or "fourth" specified day of the week in the selected month. In the third box, click ▼ and select the day of the week on which daylight savings starts.

Stop In the first box, click ▼ and select the month that daylight savings time ends. In the second box, click ▼ and select whether daylight savings time ends on the "first," "last," "second," "third," or "fourth" specified day of the week in the selected month. In the third box, click ▼ and select the day of the week on which daylight savings ends.

Time Change to Occur At Enter the hour at which the change to daylight savings time occurs. For example, enter **2** and **00** and click **AM** for 2:00 a.m.

Example:
In the United States, DST starts on the first Sunday in April at 2:00 a.m. and ends on the last Sunday in October at 2:00 a.m., so your setup should be as follows:



NOTE ☞ If you have a timer setting within one hour of this time, you need to adjust the time change parameter so the timer is not affected when the time automatically adjusts.

Time Zone

(All CCUs)

From the drop-down list, select the correct time zone. The hours of difference between Greenwich Mean Time (GMT) and each time zone are shown. With GMT at "00:00," the eleven time zones west of GMT, which include those in the United States, are GMT -01:00 to -12:00; time zones east of GMT are GMT +01:00 to +11:00. The International Date Line is at -12:00, with +11:00 to the west of it and -11:00 to the east of it.

Astronomical

(All CCUs)

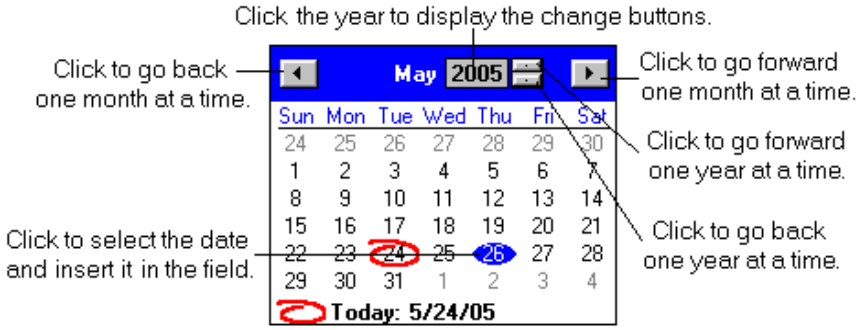
The CCU employs an astronomical clock/calendar that can be used to turn system loads on or off at sunrise or sunset and can adjust automatically to the seasons. You must enter your latitude and longitude to set up the astronomical clock/calendar.

Latitude Click ▼ and select the latitude. For example, Salt Lake City, Utah is 40° north latitude.

Longitude Click ▼ and select the longitude. For example, Salt Lake City, Utah is 112° west longitude.

Test Date To test the calculated sunrise and sunset time, select a date and the calculated sunrise and sunset times are displayed so you can compare them to known times. This can be useful if you are setting up timers based on sunrise/sunset times.

The current date is selected as a default. Click ▼ to display a calendar from which you can select any date, as shown below.


Click the year to display the change buttons.
Click to go back one month at a time.
Click to go forward one month at a time.
Click to go forward one year at a time.
Click to go back one year at a time.
Click to select the date and insert it in the field.
May 2005
Sun Mon Tue Wed Thu Fri Sat
Today: 5/24/05

DST in Test
Indicate whether you want Daylight Savings Time used in calculating the test date sunrise and sunset times. Select **Use** or **Don't Use**.

Test Sunrise
Test Sunset
The calculated sunrise and sunset times for the selected date are displayed.

Show Vacation Mode Timers (5000LC)

The Vacation function on the 5000LC is controlled by timers. When you set up a Vacation function, LiteWare 3.8 creates timers to start and stop the specified actions. Select this option to view the timers. Be aware that several timers are typically required to control a Vacation function.

NOTE ☞ Do not edit the timers for a Vacation function, edit the time periods for the Vacation function in the Switch Properties dialog box (see "Edit a Switch" on page 107).

Billing 11

This chapter provides information on the functions performed in the Billing view. You can create a bill of materials in the Billing view at any point in the job. You can have LiteWare 3.8 generate the bill based on the components used in the job, or you can manually create a bill of materials.

The bill of materials may include the following:

- Any items listed in the Add Item "Part Name" drop-down list, which includes all LiteTouch components and services
- Other items or charges that are part of the job but are not supplied by LiteTouch

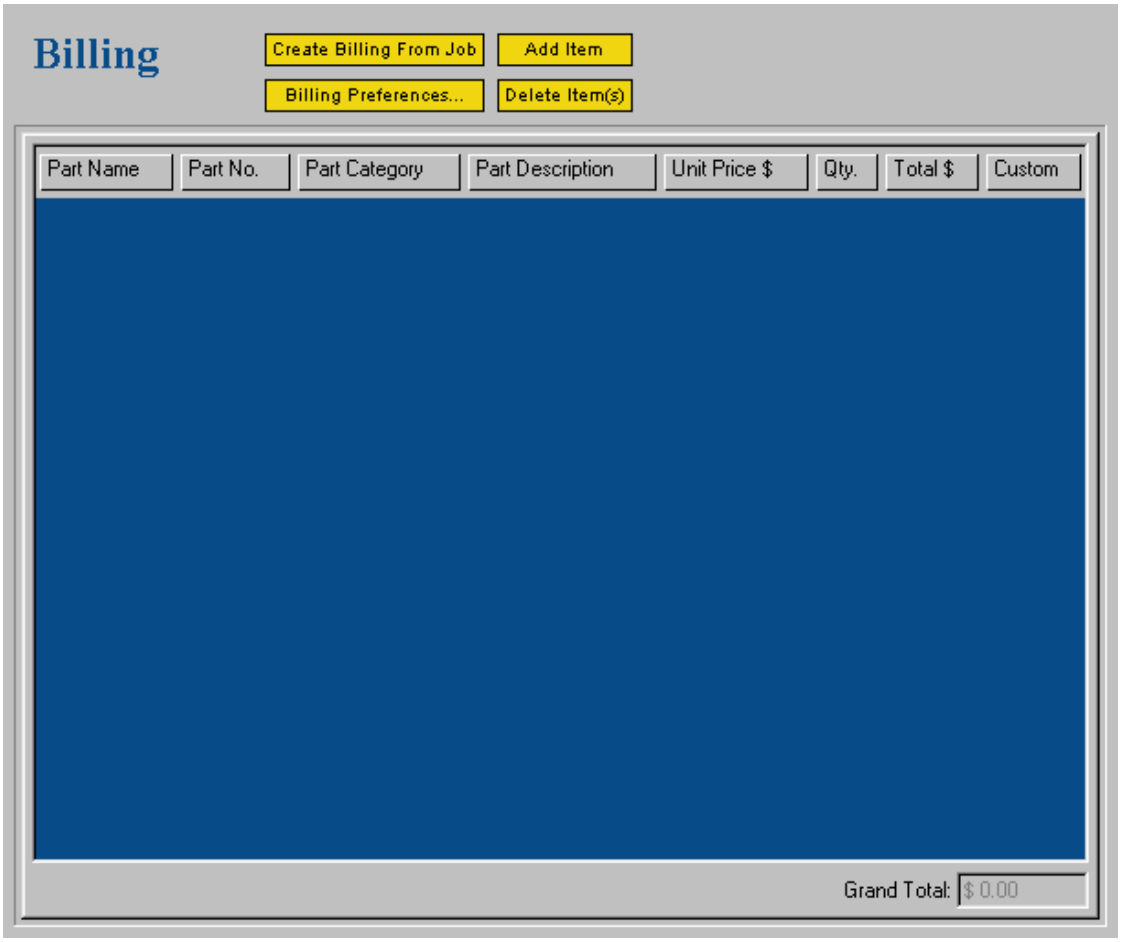
All LiteTouch components and services are based on the LiteTouch list price using the price adjustment factor that you specify. You enter the prices of non-LiteTouch components directly.

Click **[Billing]** on the view selection bar to view, generate, or edit a bill of materials. A Password prompt is displayed each time you select the Billing view until you enter your pricing password. You can access the Billing view without a password, however, the password determines whether or not pricing is displayed. Your password is assigned by your LiteTouch sales representative.

If you know the password, type it and click [**OK**]. Once you enter the password correctly, this prompt does not appear again.

If you do not know the password, click [**OK**] to proceed. You can generate a bill of materials, but all pricing and totals will show a zero value.

The Billing view is displayed.

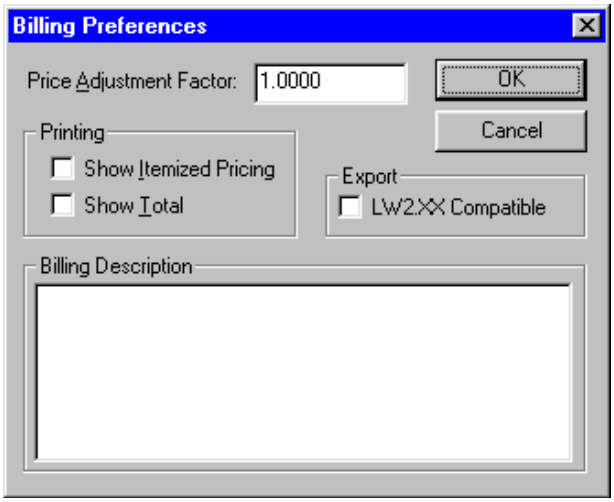


Before calculating a bill, click **[Billing Preferences]** to set the "Price Adjustment Factor" that you want to use (refer to the next page). Then do one or both of the following:

- Have LiteWare 3.8 generate the bill (see "Create Billing from Job" on page 176).
- Enter all or some items manually (see "Add Item" on page 178).

Billing Preferences

Click the **[Billing Preferences]** button to set the price adjustment factor and add a billing description. The following dialog box is displayed.



Price Adjustment Factor (Only appears if a password was entered.) The default entry of "1.0000" represents LiteTouch's list price. You can change the factor to reflect your or your customer's cost, if necessary (e.g., 1.50000 is 150% of list price; 0.500 is 50% of list price, and so on). Enter a value of "0.000" to disable pricing after your password has been entered.

Printing This selection determines the pricing information to appear on printed bills of material. Select **Show Itemized Pricing** if you want "Unit Price" and "Extended Price" columns included in the bill ("Extended Price" is the same as the "Total $" column in the Billing view). Select **Show Total** if you want the total amount for the bill of materials added to the end of the report.

Export If you want to be able to export the bill of materials file to LiteWare 2.xx, select **LW2XX Compatible**. If not selected, the file is LiteWare 3.x compatible only.

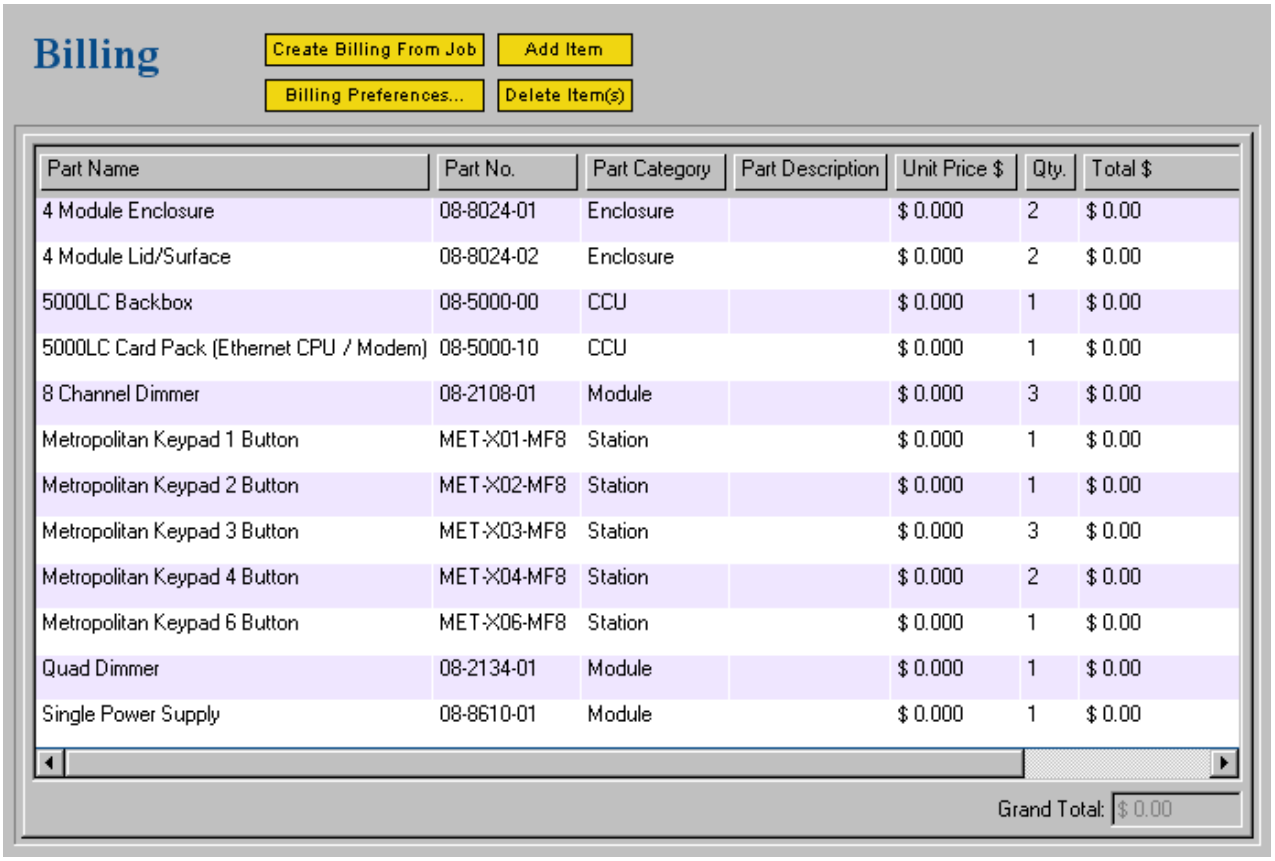
Billing Description Enter a description of the billing and any notes about the billing as desired.

Click **[OK]** to set the price adjustment factor and exit the dialog box.

Create Billing from Job

You can have LiteWare 3.8 automatically generate the bill of materials, and you can edit or add to it after it is generated.

Click [**Create Billing from Job**] and a list of materials used in the job is generated and displayed in the Billing view, as shown below. (You must enter your billing password to see prices.)


Billing
Create Billing From Job
Add Item
Billing Preferences...
Delete Item(s)
Part Name
Part No.
Part Category
Part Description
Unit Price $
Qty.
Total $
4 Module Enclosure 08-8024-01 Enclosure $ 0.000 2 $ 0.00
4 Module Lid/Surface 08-8024-02 Enclosure $ 0.000 2 $ 0.00
5000LC Backbox 08-5000-00 CCU $ 0.000 1 $ 0.00
5000LC Card Pack (Ethernet CPU / Modem) 08-5000-10 CCU $ 0.000 1 $ 0.00
8 Channel Dimmer 08-2108-01 Module $ 0.000 3 $ 0.00
Metropolitan Keypad 1 Button MET-X01-MF8 Station $ 0.000 1 $ 0.00
Metropolitan Keypad 2 Button MET-X02-MF8 Station $ 0.000 1 $ 0.00
Metropolitan Keypad 3 Button MET-X03-MF8 Station $ 0.000 3 $ 0.00
Metropolitan Keypad 4 Button MET-X04-MF8 Station $ 0.000 2 $ 0.00
Metropolitan Keypad 6 Button MET-X06-MF8 Station $ 0.000 1 $ 0.00
Quad Dimmer 08-2134-01 Module $ 0.000 1 $ 0.00
Single Power Supply 08-8610-01 Module $ 0.000 1 $ 0.00
Grand Total: $ 0.00

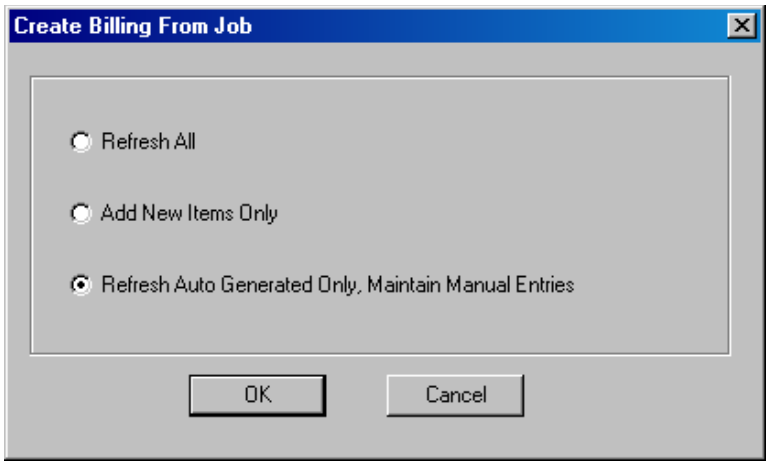
The generated bill of materials shows the part name, part number, part category, and description (if entered). If a password was entered, it also shows the price based on the quantity ordered, the total cost per part number, and the price adjustment factor, as well as a "Grand Total" at the bottom of the list.

Use the vertical scroll bar on the right to move through the list.

Refer to "Add Item" on page 178 for information on adding an item to the bill of materials. Refer to "Edit Item" on page 179 for information on editing an item.

Update Bill of Materials

If you have an existing bill of materials and you want to create a new one based on updated components, click [**Create Billing from Job**] again. The following dialog box is displayed.



Refresh All Select this option if you want to delete all items in the existing list and replace them with the new, auto-generated items.

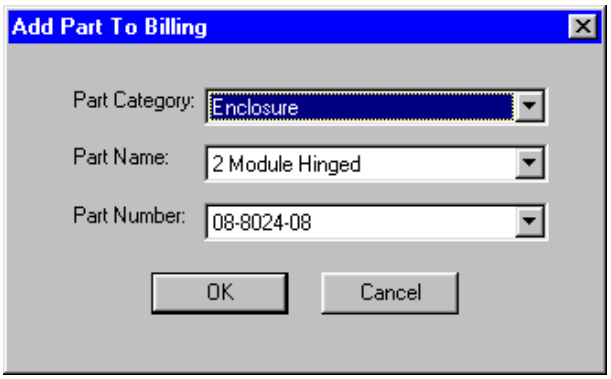
Add New Items Only Select this option if you want to retain all items on the existing bill of materials and add the new, auto-generated items to the end of the list.

Refresh Auto Generated Only, Maintain Manual Entries (Default) Select this option if you want to delete all auto-generated items from the existing list and replace them with the new, auto-generated items but retain any manually entered or priced items.

Click [**OK**] to proceed, or click [**Cancel**] to cancel the operation and retain the existing bill of materials.

Add Item

To add an item to the list, click [**Add Item**] and the following dialog box is displayed.



Part Category Click ▼ and select a category of LiteTouch items (e.g., modules, enclosures, CCU, etc.) from which to select an item.

If you are adding a non-LiteTouch item, select a part. Click [**OK**] to add the line to the bottom of the bill of materials. Refer to "Edit Item" on page 179 for instructions on editing the information.

You can select the item by part name or part number. If you select a part name, the part number is entered automatically; if you select a part number, the part name is entered automatically.

Part Name Click ▼ and select the part name in the selected category.

Part Number Click ▼ and select the part number in the selected category.

Click [**OK**] to add the item to the list. For instructions on adding quantities and editing item prices and descriptions, refer to "Edit Item" on the next page.

Edit Item

To edit the information in any cell in the bill of materials table, double-click in the cell. The cell entry is highlighted; type the new information, or select an item from the drop-down list.

Unit Price If you added an item to the list manually (using the **[Add Item]** function), you may want to edit the unit price for the item. After entering the price, press **<Tab>** or click in a different field, and the total price for the item is automatically calculated.

Qty Enter the quantity of the part if other than one. Press **<Tab>** or click in a different field, and the total price for the item is automatically calculated.

Delete Item

Do the following to delete one or more items from the list:

1. Use the scroll bar on the right to move through the list and find the item you want to delete.

2. To select a single item, click it. To select several consecutive items, press and hold **<Shift>**, then click the first and last items in the group you want to delete. To select several non-consecutive items, press and hold **<Ctrl>**, then click each item that you want to select.

3. Click **[Delete Item(s)]** to remove the item or items from the list.

Print Bill of Materials

A printed bill of materials contains all of the information in the Billing view. The name of the job and date the report was printed are included in the header.

To print a bill of materials, click on the toolbar, or select **Print** from the File menu. Click on the toolbar, or select **Print Preview** from the File menu, to view the bill of materials before printing it.

When you select **Print**, a standard Windows Print dialog box is displayed. If necessary, select the printer and specify the page range and number of copies. Click **[OK]** to print the schedule.

5000LC Programming 12

This chapter provides instructions for creating custom programs for the 5000LC in LiteWare 3.8. A custom program is used to send specialized instructions to the 5000LC that cannot be accomplished using standard LiteWare 3.8 functions and features. LiteWare 3.8 5000LC custom programs are called “user programs.”

A user program is a customized response to a trigger called a *system event*. A system event may include any of the following:

- Pressing a button (switch press)
- Holding a button (switch hold)
- Releasing a button (switch release)
- Matching a timer's start time (timer begin)
- Matching a timer’s end time (timer end)
- Entering a combination code (user event)
- Starting or restarting the CCU (startup or initialization)

User Function

A *function* is the response to a system event. When an event occurs, such as pressing a button, the system responds by executing the function. There are several predefined functions, (e.g., Dimmer function, Combination function, Momentary function, Toggle (On) and (Off), etc.). You can program the *User function* with any response supported by the LiteTouch system.

When programming a switch, you can write an independent set of instructions for three separate switch actions: press, hold, or release. When programming a timer, you can write separate instructions for the timer begin and timer end actions. The timer end action will only be executed when the specified duration is not zero.

A User function is selected for a switch or timer by selecting “User” from the “Function” drop-down list in the Switch/Timer Properties dialog box (refer to “Edit a Switch,” “User (5000LC)” on page 133 or “Add a Timer,” “User” on page 160).

User Event

A *user event* is a system event that triggers a program containing the instructions executed when a combination code is entered at a switch assigned a Combination function. Only a Combination function can start a user event. A user event's program may be as simple or as complex as you require and is capable of executing any action (or series of actions) supported by the 5000LC CCU.

A Combination function is selected from the "Function" drop-down list in the Switch Properties dialog box (refer to "Edit a Switch," "Combination (5000LC)" on page 111).

Startup Event

You can set up a *startup event* to execute a user program when the 5000LC is started or restarted. A startup event is not required for a job. If a startup event is not set up, the CCU uses the last known settings at startup. If the CCU is powered off and cards are changed, the last known settings are lost, and the system starts with the current load settings. However, the LED status may be incorrect until a button is pressed on each keypad.

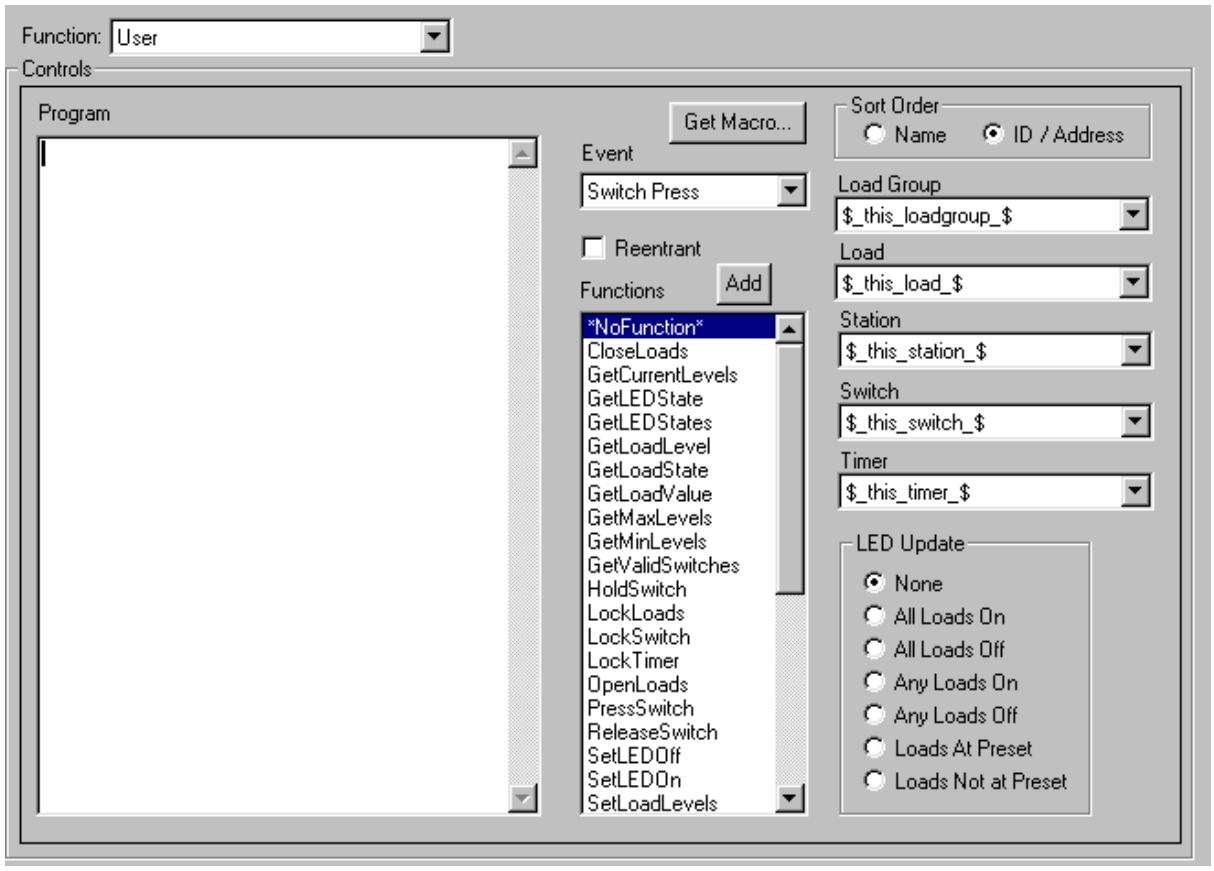
When a startup event is defined, the system always uses it to set certain initialized settings—not necessarily the last known setting—for loads, LEDs, and so on.

A startup event is set up in the Parameters view (refer to "Startup Event" on page 46).

Programming Basics

A LiteWare 3.8 user program is a group of instructions written in a language that the 5000LC can understand. This section provides basic information and rules for writing a user program. User programs are written for a User function, a user event program, or a startup event program.

The options for the User function are shown below.



The options and fields used to create the user program are the same for all three programs (user event, startup event, and User function) though each dialog box is selected differently and has a different title bar. Refer to "User Program Options" on page 193 for information on the options.

Program Functions

A *program function* defines an action for a load or load group and in some instances switches, timers, or keypads. Using program functions, you can control any aspect of a lighting control system. Each program function applies to a specific load or load group, switch, timer, or keypad. Examples of program functions include the following:

- SetLoadsOn (i.e., set loads on for the load group)
- SetLoadsOff (i.e., set loads off for the load group)
- ToggleLoadsOn (i.e., toggle loads on; same as Toggle(On)
- ToggleLoadsOff (i.e., toggle loads off; same as Toggle(Off)
- StartRamp (i.e., start ramp; to start dimming)
- StopRamp (i.e., stop ramp; to stop dimming)

Program functions typically describe an action involving a specific load, load group, or LED. Two common actions include: "get" (getting a value or the state of a load or LED) and "set" (setting a load, LED etc., to a value or state).

When creating a program, you select both the program function and the load/load group/LED from drop-down lists. All program functions are listed and explained beginning on page 198.

The Stack

The stack is where values are stored. For example, you can use the "GetLoadLevel" function to find the level of a specified load. The information retrieved is then placed on the stack.

If you bring another value to the stack, it is stacked on top of the previous value, but the previous value remains on the stack.

When you use one of the "get" functions, the requested value is retrieved and placed on top of the stack. When you use some "set" or "if" functions (explained later), the value at the top of the stack is used.

Normally, you only need to be concerned with the value at the top of the stack. However, when doing arithmetic functions, values below the top value on the stack may also be used.

Query/Change System Values

Most programs include a query (getting information about a load, load group, or LED) and instructions for what to do with the information retrieved. The following program segment shows an example of this:

GetLoadValue(*loadID1, groupID1*)
SetLoadValue(*loadID2, groupID2*)

In this program, the "GetLoadValue" function reads the load level identified as "1" in the specified group and places the value on the stack. The "SetLoadValue" function takes that value and uses it to set the load level for the load identified as "2" in the specified group.

Arithmetic Functions

In addition to program functions, you can type in commands, operators, and values. You can change the value of numbers on the stack using simple arithmetic operations. The most commonly used operations are addition and subtraction. In the following example, the program enters the equivalent of 5 + 2 = 7:

```
enter(5)
enter(2)
add
```

In this operation, the first “enter” places the number 5 at the top of the stack. In the second line, “enter” is used again to place the number 2 at the top of the stack. The “add” command adds the top two numbers on the stack and replaces both numbers with the sum of the two. So the top value on the stack becomes 7, and the 5 and 2 are no longer on the stack.

In the following example, the program enters the equivalent of 10 – 3 = 7:

```
enter(10)
enter(3)
sub
```

In this operation, “enter” places the number 10 on the stack, and then places the number 3 on the stack. The “sub” command subtracts the 3 from the 10 and replaces both numbers with 7.

More commonly, you would use arithmetic expressions to change a value that was brought to the stack using one of the “get” functions, as shown in the following example:

```
GetLoadLevel(loadID1)
enter(20)
add
SetLoadValue(loadID1, groupID1)
```

This operation reads the load level for load ID 1 and places the value on the stack. It then places the number twenty on the stack and adds the two values together, replacing both numbers with the result. It then changes the load level for load ID 1 in group ID 1 to the new value.

Another example:

```
GetLoadLevel(loadid1)
GetLoadLevel(loadid2)
add
SetLoadValue(loadID3, groupID3)
```

This operation adds the values of load ID 1 and 2 and sets the value of load ID 3 in group ID 3 to the resulting sum.

Other available arithmetic operators are described in “Arithmetic Operators and Commands” on page 202.

State and Global Variables

The LiteWare 3.8 programming language defines global variables and a state variable for each user program.

A *state variable* is a local variable specific to one user program. While the program is being executed, it can be set to any numeric value using the "setstate(*x*)" command (where *x* is the value given the state variable). When the program is terminated, so is the state variable. Upon execution, a state variable resets to zero and remains zero until it is changed.

A *global variable* is unique in that it is system-wide and user-defined. All programs on a CCU can reference the same global variable, thus allowing you to pass information (a value) from one program to another. The "setglobal(*ID,val*)" command is used to initialize a section of memory for the variable and create an identifier for it. You define the ID when you first create the global variable. From that point on, it can be referenced from any program that uses the global variable's ID.

A global variable contains a value. This value is stored in the global variable's memory when the "setglobal(*ID,val*)" command is used. When executed, this command sets the global variable to the specified value (*val*) in memory. You can then use the "getglobal(*id*)" command to retrieve the value and place it on the stack. Because it is a *global* variable, it can be queried by any program on the CCU, and it will give the same value to all programs that query it. The value can be changed as necessary using the "setglobal(*ID,val*)" command.

Any number of global variables can be created, but remember that each one occupies memory.

In the following example, a global variable is created with the identifier 10. It contains a value of 42, which can be passed to any program that uses the "getglobal(10)" command.

```
setglobal(10, 42)
term
```

Start and Stop the Program

A program begins running when its triggering mechanism is executed. Any of the following will trigger a program to execute:

- Startup event: when the CCU is powered on or reset
- User event: when the assigned combination code is entered
- User function: when the specified switch receives the triggering action (press, hold, or release) or when the timer is activated (timer begin/end)

When a program is executed, the CCU opens an *interpreter*, which acts as a mini-processor, to run the program. Each interpreter has its own stack, so you do not need to be concerned about other programs changing the current stack value. The interpreter reads a program one statement at a time in sequential order.

A program stops when the interpreter reads the "term" (termination) command. The "term" command stops the program and closes the interpreter. To stop a program but not terminate it, you can use the "end" command. As a rule, you will want to terminate most programs when they are finished to free up CCU resources. Interpreters also stop when a reset occurs or during a program upload.

Program Syntax

Each statement or command in a program must be placed on a single line. Do not place multiple commands or statements on the same line. Also, no spaces can be used in a statement.

The following examples show incorrect and correct ways to enter program statements.

Incorrect:
GetLoadLevel(*loadID*) enter(30) sub

Correct:
GetLoadLevel(loadID)
enter(30)
sub

Incorrect:
SetLoadsOn(*groupID*) term

Correct:
SetLoadsOn(*groupID*)
term

Incorrect:
if (stack = 1)

Correct:
if(stack=1)

Incorrect:
Set Load Levels (*xxx*)

Correct:
SetLoadLevels(*xxx*)

When setting up a program function, always select the function from the "Functions" drop-down list. This makes certain that the statement is entered correctly.

When typing commands and arithmetic operations, use lower case letters and never use spaces in the statements.

Add Comments to a Program

You can add comments to a program to help clarify or explain a function or action. Comments do not affect the program or initiate any action. Comments can also be useful if someone else will be installing the program, especially if a problem or error occurs. Comments in the program can help the installer determine what the program or statement is supposed to do.

A comment is always preceded with a semicolon (;). It can follow a command, or it can be on a line by itself. For example:

```
GetLoadLevel(loadID1)
GetLoadLevel(loadID2)
add ;adds the values of load 1 and 2
SetLoadValue(loadID3, groupID3)
;takes the result to set the value of load 3 in load group 3
```

The semicolon tells the interpreter to ignore the line. If a comment wraps to a second line or more, place a semicolon at the beginning of each line. A semicolon must precede each line that you want the interpreter to ignore. Comment lines can be placed anywhere in a program.

Conditional Statements

A conditional statement is used to present a condition for which the program's response depends on whether the statement is true or false. If the statement is true, a specific action is performed; if it is false, a different action is performed.

Conditional statements contain an "if" command and a conditional value. The following is an example of a conditional statement:

```
GetLoadState(loadID)
if(stack=0)
{
   SetLoadsOn(groupID)
}
term
```

In this example, the program first instructs the interpreter to identify the state of the load. If the load is off, the conditional statement is true (stack=0), and the interpreter reads the "nested statement" that follows and turns the loads in a group on. A nested statement is enclosed in brackets { } (on separate lines) and contains the action to be taken if the conditional statement is true. If the statement is false, the interpreter skips over the nested statement and interprets the statement immediately following the nested statement. In the example, if the load is already on, the conditional statement is false, so the interpreter skips the nested statement and reads the "term" command, ending the program.

Following is a program showing two conditional statements:

```
GetLoadState(groupID)
if(stack=1)
{
   SetLoadsOff(groupID)
   term
}
GetLEDState(switchID)
if(stack=0)
{
   SetLoadsOn(groupID)
   term
}
term
```

This program instructs the interpreter to get the state of the specified load. If the load is on, it turns the load group off. If it is off, it checks the LED state. If the LED state is off, it turns the group on.

The following program simulates a dimmer function. The program consists of three sets of instructions, the first is linked to switch press, the second to switch hold, and the third to switch release. In the dialog box, the part of the program that pertains to each action (press/hold/release) is entered separately. To help you understand how it works, the full program is shown below, separated by action to show how it was written:

Switch press programming:

```
setstate(0)
end
```

Switch hold programming:

```
setstate(1)
StartRamp(groupID)
end
```

Switch release programming:

```
if(state=1)
{
   StopRamp(groupID)
   term
}
ToggleLoadsOn(loadID)
term
```

When the switch is pressed, the interpreter is opened and the state variable is set to 0. Then the interpreter waits. If the switch is held, the load begins to ramp. When the switch is released, there are two possible actions: if the switch was held, the ramping is stopped and the program is terminated; if the switch was not held, the load group is toggled (with "on" priority if in an indeterminate state) and the program is terminated. A more complex version of this program is shown in "Dimmer" on page 213.

Conditional Values

When testing the condition of the stack or the state variable, conditional values such as (stack=1) or (state=0) are specified. Other operators are available in addition to "equals" (=). Possible conditional values include any of the following. All operators can be used with either a stack or state value. "*x*" represents the test value that you enter.

(stack=*x*)	stack is equal to value
(stack<*x*)	stack is less than the value
(stack>*x*)	stack is greater than the value
(stack<=*x*)	stack is less than or equal to the value
(stack>=*x*)	stack is greater than or equal to the value
(stack<>*x*)	stack is greater than or less than the value (not equal to)

Loops

A loop is a statement that instructs the interpreter to begin reading the program again from the top of the loop. If the loop contains one or more nested statements, it finishes reading the nested statement(s) before starting again from the top of the loop.

A loop can be a useful addition to a program, enabling the interpreter to respond to earlier program statements after later statements may have changed the value of the stack, state variable, or global variable.

When writing a loop, you need to make certain that you include one or more termination commands and that they are placed where the interpreter will eventually read one, otherwise the program loop may continue indefinitely, effectively locking up the CCU.

Following is an example of an endless loop, one that can only be terminated by rebooting the CCU or uploading the program:

```
enter(1)
loop(stack=1)
{
   ...
   enter(1)
}
term
```

Even though the program includes a “term” command, the interpreter is instructed to loop before it gets to the termination statement, causing the program to loop indefinitely (unless the stack changes).

In the following example, a loop statement is used to rerun the program as long as the load level is not 50%. If the load level is set to 50% at any time, the program terminates. The program flashes the load group on and off (on one second, off one second) until the load level is set to 50% from some other source (button, timer, etc.).

```
GetLoadLevel(loadID1)
loop(stack<>50)
{
   SetLoadsOn(groupD1)
   wait(10)
   SetLoadsOff(groupD1)
   wait(10)
   GetLoadLevel(loadID1)
}
term
```

The following example creates a simple chase sequence that continues until the button is pressed again. It assumes load groups 1, 2, 3, and 4 are the load groups associated with the chase. There is a 5-second "on" time for each group, at the end of which the group is turned off and the next group is turned on. Load group 5 contains all the loads associated with the other groups. Load group 5 is used to stop and turn off any loads that are on. This program uses a state variable to determine if the loop is running.

```
if(state=1)
{
   SetLoadsOff(5)
   term
}
setstate(1)
loop(state=1)
{
   SetLoadsOn(1)
   wait(50)
   SetLoadsOff(1)
   SetLoadsOn(2)
   wait(50)
   SetLoadsOff(2)
   SetLoadsOn(3)
   wait(50)
   SetLoadsOff(3)
   SetLoadsOn(4)
   wait(50)
   SetLoadsOff(4)
}
term
```

The final "term" is added only in case the switch has an indeterminate state. This should never happen, but if it does, the program terminates and does nothing else. When the program is restarted, the state is always zero.

NOTE ☞ This switch program must be "reentrant" to work properly; otherwise it will never stop. Refer to the next section for information on the "Reentrant" option.

Reentrant

The "Reentrant" option is used to determine what happens if a program is restarted (switch pressed again) while it is still running. If Reentrant is enabled (check box checked), the program starts over. If it is disabled, a second interpreter opens and runs a copy of the program.

Generally, if timing is involved, you should use Reentrant; if timing is not involved, you should not use Reentrant. However, there are exceptions. Following is an example of a program that would not use Reentrant with a timing function:

SetLoadsOn(*groupID1*)
wait(150)
SetLoadsOn(*groupID2*)
SetLoadsOff(*groupID1*)
wait(150)
SetLoadsOn(*groupID3*)
SetLoadsOff(*groupID2*)
wait(150)
SetLoadsOff(*groupID3*)
term

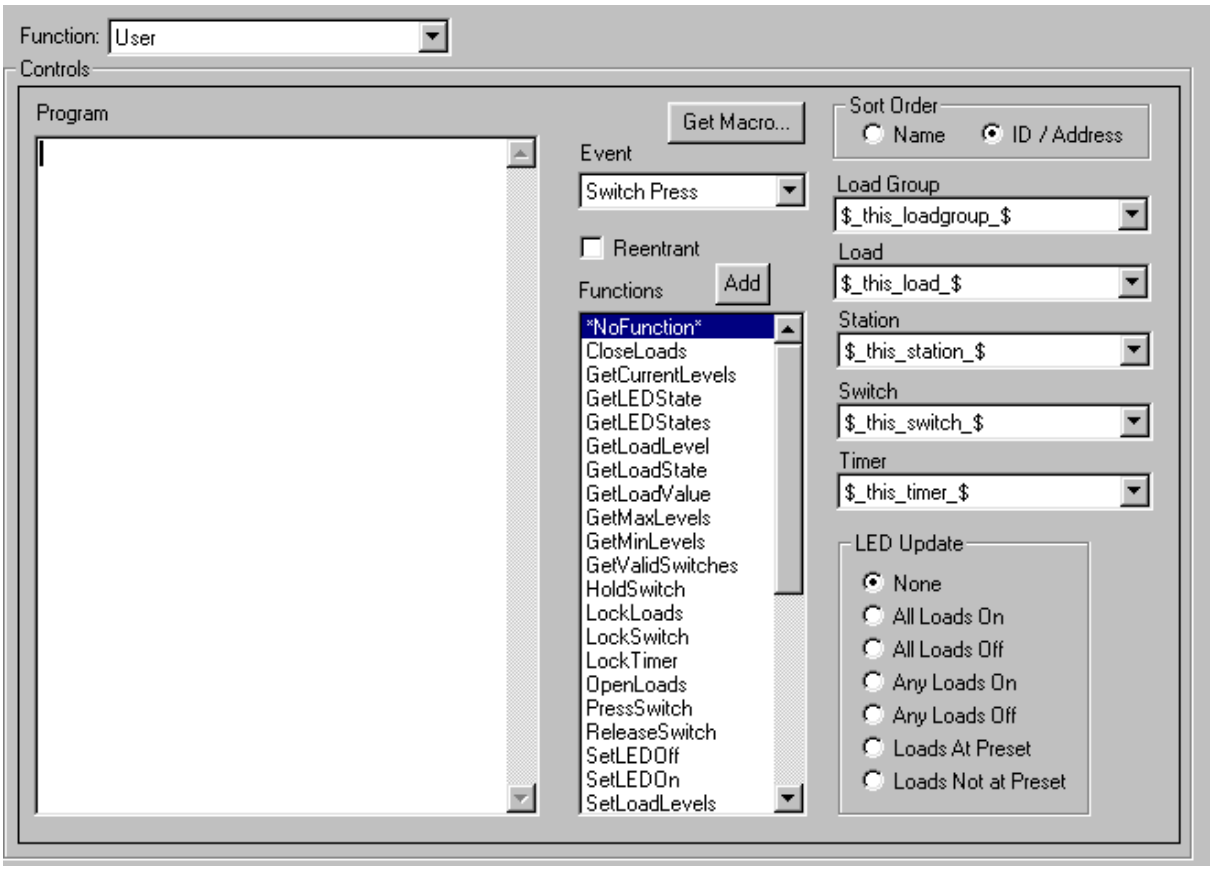
This program is a pathway sequence that lights a path as a person walks through it, turning the lights off as they pass. If a second person enters the pathway and starts the program before it has been completed for the first person, if Reentrant is *disabled*, a second interpreter is opened, allowing both to run the program concurrently; if Reentrant is *enabled*, the program starts over for the second person, possibly before the first person has completely passed through the lighted area. For another example of a pathway sequence refer to “Pathway Sequence” on page 214.

User Program Options

User programs are written for a User function, user event, or startup event.

The options and fields used to create the user program are the same for all three programs (user event, startup event, and User function) though each dialog box is selected differently and has a different title bar.

The options for the User function are shown below.



Create a User function for a switch by selecting **User** in the Switch Properties dialog box, Programming tab, "Function" drop-down list (refer to "Edit a Switch" on page 107). Create a User function for a timer by selecting **User** in the Timer Properties dialog box, Programming tab, "Function" drop-down list (refer to "Add a Timer" on page 155).

After you select the Combination function for a switch in the Switch Properties dialog box, Programming tab, "Function" drop-down list (refer to "Edit a Switch" on page 107), click **[Create Event]** to create a user event in the Combination Event dialog box.

Create a startup event in the Parameters view. Select the startup event from the drop-down list at the "Startup Event" field, then click **[Edit]** to set up the startup event in the Edit Startup Event dialog box.

(Step 1) Event

When creating a **user event** or **startup event**, skip this field; these events do not use this option.

When creating a **User function for a switch**, click ▼, and select the trigger event for the switch: **Switch Press**, **Switch Hold**, or **Switch Release**.

When creating a **User function for a timer**, click ▼, and select the trigger event for the timer: **Timer Begin** or **Timer End**.

NOTE ☞ You must always set up instructions for a "switch press" when you set up a "switch hold" or "switch release" in order for them to work properly. If no action is required, use "end." For a timer, you must set up a "timer begin" when you set up a "timer end."

(Alternate Step) [Get Macro]

Macros are programming "shortcuts." A macro is a file containing a pre-defined program that you load into the Program box. You then specify the parameters for your design. Because it is a separate file, a macro can be transferred between computers.

To enter a pre-defined program using a macro, click the **[Get Macro]** button. This accesses an Open dialog box used to import a macro file. For more information on macros, refer to Chapter 13, "5000LC Macros" on page 205.

(Step 2) Reentrant

The "Reentrant" option is available when programming user events and User functions for switches. It does not apply when programming a startup event or User functions for timers. If the "Reentrant" option is not available, it is dimmed.

The "Reentrant" option is used to determine what happens if a program is restarted (switch pressed again) while it is still running. If Reentrant is enabled (check box checked), the program starts over. If it is disabled, a second interpreter opens and runs a copy of the program.

Generally, if timing is involved, you should use Reentrant; if timing is not involved, you should not use Reentrant. However, there are exceptions. Refer to "Reentrant" on page 192 for more information.

(Step 3) Functions 1

In the "Functions" list, click to select the program function that you want to use. "Load Group," "Load," "Station," "Switch," or "Timer" fields appropriate to the selected function become available with drop-down lists for you to select the load group, load, keypad, switch, or timer that you want to program. For a complete list of program functions and descrip-

tions, refer to "Program Functions List" on page 198. For information on arithmetic operators and commands, refer to page 202.

(Step 4) Sort Order

Select how you want the load groups, loads, keypads, switches, or timers in the drop-down lists sorted. They can be listed in order by "Name" or "ID/Address."

(Step 5) Load Group Load Station Switch Timer

All program functions perform some kind of action on a load group, load, keypad, switch, or timer. From the appropriate field's drop-down list, select the load or device to which the program function applies. You cannot select a device that is not appropriate for the selected function.

For most program functions, you will select a switch, load, or load group. A timer is only selected if you are using the "Lock Timer" and "Unlock Timer" functions.

For functions that query a keypad, you need to select the keypad. Keypads are defined by gang. Keypad related functions include: "GetLEDStates" and "GetValidSwitches."

For more information, refer to "Program Functions List" on page 198.

(Step 6) Functions 2

To insert the function into the program after you have selected the load or device, click **[Add]**, or double-click the selected (highlighted) function. The function and the group, load, keypad, switch, or timer identifier are added to the Program box.

(Step 7) LED Update

(User switch function only) The "LED Update" options apply to a switch being programmed. They determine the LED action for the switch. Each option is explained below:

None	LED does not light
All Loads On	LED lights only if all loads assigned to the switch are on
All Loads Off	LED lights when all loads are off

Any Loads On	LED lights if any of the loads assigned to the switch are on
Any Loads Off	LED lights if any of the loads assigned to the switch are off
Loads at Preset	LED lights when loads are at preset levels
Loads Not at Preset	LED lights when loads are not at preset levels

"Loads" refers to the load group assigned to the switch. Select "None" if no automatic LED update is desired. The "SetLEDOn" and "SetLEDOff" functions can be used for explicit LED set commands.

(Step 8) Program Box

A program consists of a mixture of program functions, commands, and operators carefully arranged into a set of instructions. If you have not already read the section "Programming Basics" beginning on page 182, you should read it before proceeding.

You write each program in the Program box, which is used much like an embedded word processor. In the Program box, you can type characters, edit existing text, delete characters and words, insert new lines, and use standard Windows cut/copy/paste conventions.

Editing conventions include the following:

<Enter>	insert a new line
<Delete>	delete the character to the right of the cursor location, or delete selected characters
<Backspace>	delete the character to the left of the cursor location
<Ctrl> z	undo previous delete
<Ctrl> x	cut blocked text
<Ctrl> c	copy blocked text
<Ctrl> v	paste the cut or copied text

Use the mouse or arrow keys to move or position the cursor.

Use **<Shift>** with the arrow keys (or click and drag the mouse) to block text.

Save and Exit

When you have finished creating or editing a program, click **[OK]** to save the program and exit the dialog box. This returns you to the previous dialog box.

Click **[Cancel]** to exit a dialog box without saving.

Program Functions List

All program functions are listed below using the correct program syntax. Select a program function from the "Functions" list box in the user program dialog box. Use the other fields to identify the load group, load, keypad, switch, or timer.

GetLoadState(*load*) Queries whether the specified load is on (1) or off (0). The value (0 or 1) is placed on the stack. If a scene is active that sets the load to zero, it will also return (1).

GetLoadLevel(*load*) Queries for the current level (0 - 100) of the specified load. The value is placed on the stack.

SetLoadsOn(*group*) Turns on the specified load group, either to the last known level or to the minimum turn-on level, whichever is greater, using the load fade-on times specified in the load group parameters.

SetLoadsOff(*group*) Turns off (or fades off) the specified load group.

SetLoadLevels(*group*) Sets the loads in the specified load group to the preset levels defined for the group using the load fade-on times specified in the load group parameters.

SetPrevLoadStates(*group*) Sets the loads of the specified load group to their previous states and levels.

GetCurrentLevels(*group*) Retrieves the level of the loads for the specified group and saves them as the new presets.

GetMinLevels(*group*) Retrieves the current level of the loads for the specified load group and saves them as the new minimum dim levels.

GetMaxLevels(*group*) Retrieves the current level of the loads for the specified load group and saves them as the new maximum dim levels.

GetLoadValue(*load,group*) Queries the preset value of the specified load, as a member of the specified group, and places the value on the stack.

SetLoadValue(*load,group*) Uses the value at the top of the stack to set the preset level for the specified load in a specified load group.

GetLEDState(*switch*) Gets the current LED state of the specified switch (0 or 1) and places it on the stack.

GetLEDStates(*keypad*) Gets the current LED states for all switches on a keypad and places them on the stack as a bitmap code.

GetValidSwitches(*keypad*) Gets the current state of all switches on a keypad. All keypads have the hardware for nine button positions even if fewer buttons are installed. This function identifies which of the nine buttons have been programmed and returns their state as a bitmap code.

For example, a return code of Hex 1FF (decimal 511, binary 111111111) indicates that all nine switches are programmed; a return code of Hex 000 (decimal 000, binary 000000000) indicates that no switches are programmed; a return code of Hex 0AB (decimal 171, binary 010101011) indicates that switches 1, 2, 4, 6, and 8 are programmed; a return code of Hex 155 (decimal 341, binary 101010101) indicates that switches 1, 3, 5, 7, and 9 are programmed.

GetStaticByte(*name*) Returns to the stack the value stored at the named, non-volatile memory location.

SetStaticByte(*name*) Puts the value on the stack into the named, non-volatile memory location.

GetStaticBit(*name*) Returns 1 or 0 to the stack based on the state of the named, non-volatile memory location.

SetStaticBit(*name*) Sets the value at the named, non-volatile memory location to 1.

ClearStaticBit(*name*) Sets the value at the named, non-volatile memory location to 0.

SendSerialIn(*port,string*)
SendSerialOut(*port,string*) Sends a string enclosed in quotation marks ("string") in or out the serial port. Use the following conventions with this function:

Any ASCII character except the following sequences:

"\\"	inserts a single backslash "\"
\xNN	inserts a hex NN where NN is any combination of hex digits EXCEPT 00
\r	inserts a hex 0D (carriage return) character

\n	inserts a hex 0A (newline) character
\t	inserts a hex 09 (tab) character

Port must be one of the following (not in quotation marks):

COM1	CPU card serial 1
COM2	CPU card serial 2
COM3	C2000 card serial port
COM4	modem card serial port
COM5	not currently used

Example:

```
SendSerialIn(COM1,"R,DGCLK\r")
; this command sends the current time of day string out com port 1
;(CPU card Serial 1)
```

SetLEDOn(*switch*) Turns the LED of the specified switch to “on.”

SetLEDOff(*switch*) Turns the LED of the specified switch to “off.”

StartRamp(*group*) Starts ramping the specified load group in the opposite direction of the previous ramp (knows the last ramp direction).

StopRamp(*group*) Stops ramping the specified load group. This is typically programmed to switch release.

OpenLoads(*group*) (Used with two-way motor loads.) Energizes the loads in a group and turns off the complements (1 on, 2 off). (Assuming the load in the group is the first output of a module.)

CloseLoads(*group*) (Used with two-way motor loads.) Turns off the loads in the group and turns on the complements (1 off, 2 on). (Assuming the load in the group is the first output of a module.)

StopLoads(*group*) (Used with two-way motor loads.) Turns off the loads in the group and turns off the complements.

PressSwitch(*switch*) Causes a “switch press” event to be launched.

HoldSwitch(*switch*) Causes a “switch hold” event to be launched.

ReleaseSwitch(*switch*) Causes a “switch release” event to be launched.

ToggleLoadsOn(*group*) Performs same action as the Toggle (On) function. Refer to “Toggle (On), Toggle (Off) (5000LC)” on page 131 for more information.

ToggleLoadsOff(*group*) Performs same action as the Toggle (Off) function. Refer to "Toggle (On), Toggle (Off) (5000LC)" on page 131 for more information.

LockLoads(*group*) Locks all loads in the specified load group to their present state. While locked they are inaccessible. They are unlocked using the "UnlockLoads" function. This program function is commonly used for parties.

UnlockLoads(*group*) Unlocks all loads in the specified load group. Loads are locked with the "LockLoads" function.

LockSwitch(*switch*) Locks the specified switch to its present state. While locked it is inaccessible. It is unlocked using the "UnlockSwitch" function.

UnlockSwitch(*switch*) Unlocks the specified switch. Once unlocked it functions normally. It is locked using the "LockSwitch" function.

LockTimer(*timer*) Locks the specified timer to prevent it from executing. While locked the timer can neither turn off nor turn on its load group(s). It is unlocked using the "UnlockTimer" function. This program function is commonly used for parties.

UnlockTimer(*timer*) Unlocks the specified timer. The timer will activate at its next scheduled start time. It is locked using the "LockTimer" function. **Note**: **Unlocking a timer does not cause it to start if it's start time has already passed.**

The following example shows a user program activated at the start of a party:

SetLoadLevels(*groupID2*); turns on driveway lights
lockloads(*groupID1*)
;this makes certain the lights remain at their current settings
locktimer(*timerID*)
;this makes certain that driveway lights remain on until the
;party is over

At the end of a party:

unlockloads(*groupID1*)
unlocktimer(*timerID*)
SetLoadsOff(*groupID2*)
;the last line turns off the group that was controlled by the timer

Arithmetic Operators and Commands

This section lists the arithmetic operators and commands that are used in the LiteWare3.x programming language. "*x*" represents a value (0, 1, etc.) or an identifier (load, switch, etc.).

enter(*x*) Enters the indicated value on the stack.

add Adds the top two numbers on the stack together and replaces them with the result.

sub Subtracts the last entry on the stack from the previous one and replaces both numbers with the result.

mul Multiplies the top two values on the stack and replaces both with the result.

div Divides the previous value on the stack by the last entry and replaces both with the result.

mod (Modulus) When a number is divided and there is a remainder, this command places the remainder, rather than the division result, on the stack. For example:

```
enter(22)
enter(5)
mod
;returns the remainder of "2" to the stack
```

equal True if the top two values on the stack are equal.

nequal True if the top two values on the stack are not equal.

gtr True if the top value on the stack is greater than the second value.

lsr True if the top value on the stack is less than the second value.

gtreq True if the top value on the stack is greater than or equal to the second value.

lsreq True if the top value on the stack is less than or equal to the second value.

setstate(*x*) Sets the state variable to the value *x*.

wait(*x*) Instructs the program to wait for the value entered in tenths of a second (e.g., 100 = 10 seconds)

end Causes the interpreter to stop without terminating the program.

term Terminates the interpreter, closing the program.

pause(*event*,*ID*) Pauses the interpreter running the specified event. The "resume" command is used to start the interpreter again. The *event* parameter can be represented by any of the following:

ini = startup event
swp = switch press
swh = switch hold
swr = switch release
tmb = timer begin
tme = timer end
usr = user event

The *ID* parameter can represent a switch, timer, or user identifier entered as a decimal value.

resume(*event*,*ID*) Resumes a paused interpreter running the specified event. The "pause" command is used to temporarily stop the interpreter. The *event* parameter can be represented by any of the following:

ini = startup event
swp = switch press
swh = switch hold
swr = switch release
tmb = timer begin
tme = timer end
usr = user event

The *ID* parameter can represent a switch, timer, or user identifier entered as a decimal value.

getglobal(*ID*) Retrieves the value from a global variable, where *ID* is the identifier of the global variable. A global variable is created or updated using the "setglobal(*ID,val*)" command (see below). A global variable can be queried by any program on the CCU and will give the value that was saved to it using the "setglobal(*ID,val*)" command. The value is placed on the stack.

setglobal(*ID*,*val*) Creates or updates a global variable. A global variable can be queried by any program on the CCU and will give the value that was saved to it using

this command. The "setglobal" command saves the value (*val*) as the value for the specified global variable. The ID must be between 0 and 1000.

gettime Retrieves the current time using the format HHMM (24-hour format). For example, 700 = 7:00 a.m.; 1400 = 2:00 p.m.

getdate Retrieves the current date using the format MMDD.

getwday Retrieves the current day of the week (1 – 7, where 1 is Sunday).

getmday Retrieves the current day of the month.

getset Retrieves the sunset time for the current day using the format HHMM (24-hour format). For example, 2015 = 8:15 p.m.

getrise Retrieves the sunrise time for the current day using the format HHMM (24-hour format). For example, 655 = 6:55 a.m.

5000LC Macros 13

This chapter provides information and instructions for creating and loading macros in a 5000LC user program. Macros are programming "shortcuts." A macro is a file containing a pre-defined program that you load into the user program dialog box while programming a User function, user event, or startup event (refer to Chapter 12, "5000LC Programming"). You then specify the parameters for your design. Because it is a separate file, a macro can easily be transferred between computers.

Use the "Get Macro" option to import a macro with parameters unique to each design to your User function, user event, or startup event programs. This means that one macro can be utilized in several designs. You can create your own macros for use in your designs.

Import a Macro

You should save or copy macro files to the LiteWare 3.8 default folder on your hard disk so they will be easy to find.

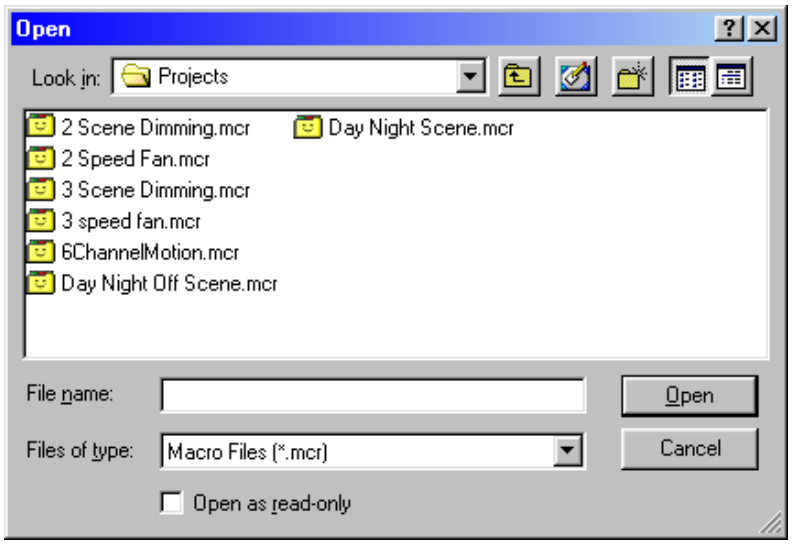
Each macro has a specific purpose and is designed to function with a specific type of event. A "ProgramType" statement in the macro's header identifies the intended type of event as follows:

@ProgramType[startup]	(startup event)
@ProgramType[user]	(user event)
@ProgramType[switch]	(user program specifying a switch)
@ProgramType[timer]	(user program specifying a timer)

Do the following to import a macro file into LiteWare 3.8:

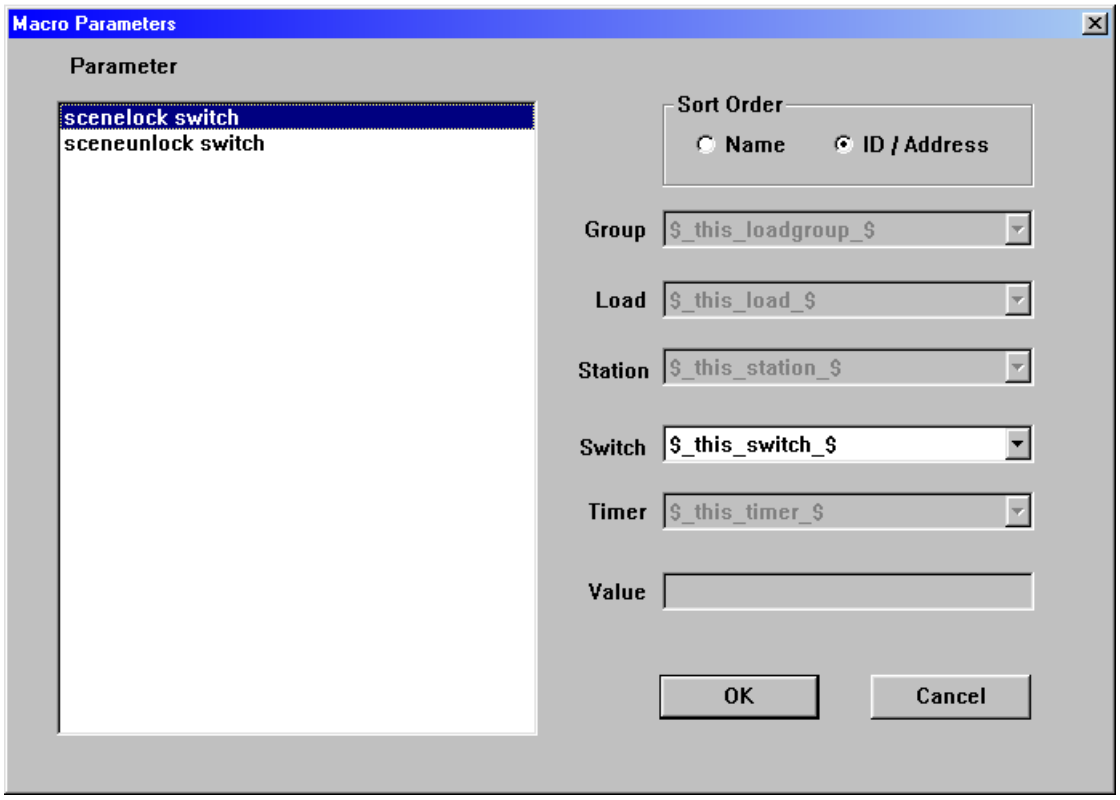
1. From the dialog box for the User function ("Edit a Switch," "User (5000LC)" on page 133 or "Add a Timer," "User" on page 160), user event (refer to "Edit a Switch," "Combination (5000LC)" on page 111), or startup event (refer to "Startup Event" on page 46), click the **[Get Macro]** button.

The following dialog box is displayed.



The default folder opens, and all macro files (files with an ".mcr" extension by default) are listed. If your macro files are located in a different folder, click to select the folder.

2. Select the macro file that you want to load, and click **[Open]**, or double-click the macro file name. The following dialog box is displayed.



3. To customize the macro for the job, select a parameter in the box on the left. On the right, a corresponding field with a drop-down list becomes available.

4. Select whether you want the load groups, loads, keypads, switches, or timers in the drop-down list sorted by "Name" or "ID/Address."

5. Click at the appropriate field, and select a setting for the parameter.

6. If the "Value" field becomes available, enter the applicable information. For example, if you selected a timer macro parameter, enter the timer length in tenths of a second.

7. Click [OK] to exit the Macro Parameters dialog box and return to the user program dialog box. The macro is loaded into the Program box.

Activate a Switch's LED

A switch's LED does not automatically light in response to the actions in the macro program. Nor is it required that it light in order for the macro to work properly. For a switch's LED to light in response to program actions, one of the following is required:

- The correct LED statements must be included in the program (explicit "SetLEDOn" and "SetLEDOff" functions), or ...
- The specified load group for the macro must be assigned to the switch being used to run the program. You can do this by assigning the load group to the switch (refer to "Edit a Switch" on page 107 or "Load and Programming Summary" on page 143). The LED update must be set up correctly (e.g., "@LEDUpdate[allon]" for a switch macro); refer to "LEDUpdate" on page 212.

Create a Macro

Macros are programming "shortcuts." A macro is a file containing a predefined program that you load into the user program dialog box while programming a User function, user event, or startup event (refer to Chapter 12, "5000LC Programming"). You specify the macro parameters for your design. Because it is a separate file, a macro can be transferred between computers.

You can create your own macros. Parameters unique to each design are added to the macro when you import it into LiteWare (refer to “Import a Macro” on page 205), so one macro can be utilized in several designs.

You create macros in any word processing program in which you can save a file in the ASCII “text only” format. Programs such as Microsoft Notepad or Wordpad work well. These programs save the macro in the correct format, but they add a *.txt* extension to your file (unless the file type is “*.*”). After the file is completed, edit the file name so that it has the correct “.mcr” extension (e.g., *macro.mcr*).

NOTE ☞ Do *not* save macros in a standard word processor format (e.g., Word Perfect’s .wpd or Microsoft Word’s .doc). A macro must be in the ASCII text format to work.

Control Tags

A macro is a user program with added “control tags,” most of which are placed in the macro's header. The program portion of the macro uses the same syntax as other user programs. The header's control tags define the program type, program parameters, and so on.

Control Tag Syntax

Each control tag statement is preceded by the “at” symbol (@), as follows:

```
@ProgramType[switch]
```

Comments may be added to either the user program or the header. However, comments before the first event control tag do not transfer to the Program box; comments in the user program are transferred. Comments must be preceded by a semicolon (;), as follows:

```
;this is a comment
```

Syntax specific to each control tag is explained in the following sections describing each type of control tag.

Control Tag Types

Control tags serve two main purposes:

- They allow you to set program options (such as program type and event, Reentrant, and LEDUpdate) that are normally set using the fields in the user program dialog box.
- They allow you to add program parameters, which prompt the user to enter values required to complete the program.

LiteWare 3.8 macros use five types of control tags, as follows:

- ProgramType
- DefineParam
- Reentrant
- LEDUpdate
- Event

Header control tags are explained in the following sections.

ProgramType

The "ProgramType" control tag (required) defines the type of event with which the macro is designed to work. It is the equivalent of selecting "Startup Event," "User Event," or "User Function" when creating a program. Possible program types are:

@ProgramType[startup]	(Startup event)
@ProgramType[user]	(User event)
@ProgramType[switch]	(User function specifying a switch)
@ProgramType[timer]	(User function specifying a timer)

The ProgramType tag must be the first line in the header (unless it is preceded by comment lines).

DefineParam

"DefineParam" control tags are used to prompt a user to enter the applicable design parameters for the program when the macro is loaded. These are the parameters selected in the Macro Parameters dialog box (refer to "Import a Macro" on page 205).

When a user starts a macro, a dialog box is displayed that requests the parameters defined by the DefineParam control tags in the macro header. After the parameters are selected or entered, and the user clicks [OK] in the dialog box, the program information from the macro and the specified parameters are combined and the complete program is displayed in the Program box of the user program dialog box.

NOTE ☞ DefineParam tags are always placed together as a group in the header of the macro. To avoid confusion, you should avoid placing comments between DefineParam tags.

A DefineParam tag consists of a name, a type, and a default, as shown below (a default is required but can be "0"):

@DefineParam[*name,type,default*]

Commas (but no spaces) separate the name, type, and default values.

You must add a DefineParam statement for each parameter the user is required to enter. Up to 99 parameters may be defined for each macro.

Name The name in the DefineParam tag is the description that will be displayed in the dialog box. The name should be as descriptive as possible in order to help the user understand the purpose of the parameter they are to enter. Up to 30 characters may be used. You can use spaces in the name but nowhere else in the control tag. For example:

@DefineParam[Motor Loads Group,*type,default*]

Type The DefineParam tag must specify the type of information being requested, as follows (all are selected by name except the value):

group	(load group)
load	(specific module load)
keypad	(specific keypad gang)
switch	(specific button/switch on the keypad)
timer	(specific named timer)
value	(requested numeric value)

This entry specifies the type of field in the dialog box for the program parameter. For example, if “group” is specified as the type, the Macro Parameters dialog box provides a drop-down list of load group choices for the user. All parameter types except “value” provide the user with a drop-down list.

If “value” is specified, a data entry field is provided for the user to enter the numeric value requested. The “name” entry should describe the type of entry required. Most value requests call for a time entry, always defined in tenths of a second. For example, “Duration of timer (1/10 sec)” tells the user to enter a time value in tenths of a second.

Default You must enter a default parameter. If the user does not make a selection or enter a value, the default is used. A default is particularly useful when the “value” type is specified. If necessary, “0” can be specified as a default. If “0” is specified as the default for a load group, the default is the top entry in the drop-down list. If “15,” is specified, the default is load group ID 15 from the drop-down list.

Insert the Parameters into the Program

After the parameters requested by the DefineParam control tag are entered, the macro must specify where in the program to insert the information. This requires some cross-referencing between the DefineParam control tag and the program.

All DefineParam control tags are placed together as a group in the macro's header. Though they are not directly numbered, a sequential numbering is implied by their order in the header. The first parameter is identified as 1, the second parameter is 2, the third is 3, and so on. If you add a DefineParam control tag to, or delete one from, a group of DefineParam tags, keep the implied sequential numbers in mind, as they are used to identify the position of the parameters in the program.

To identify where the requested parameters are to be placed in the program, enter a variable reference to each parameter as identified by the DefineParam tag's position in the header.

For example:

```
@DefineParam[Dimming Switch,switch,0]
@DefineParam[Dimming Group,group,0]
.
.
.
GetLEDState(###1)
SetLoadsOn(###2)
```

When the macro is loaded, the first parameter (the dimming switch number) is inserted in place of the variable "###1;" the second parameter (the dimming group number) is inserted in place of the variable "###2," and so on. The parameters (###2, ###1, etc.) may appear in multiple lines.

Up to 99 parameters can be defined in a macro. The proper syntax for a variable is: (###1) . . . (###9), (##10) . . . (##99).

Reentrant

The "Reentrant" control tag is used to enable or disable the "Reentrant" option. This tag performs the same function as the Reentrant check box in the user program dialog box (refer to "Reentrant" on page 192). Enter the following in the macro to enable the function:

```
@Reentrant[1]
```

If the Reentrant control tag is not present or is set to zero, Reentrant is disabled. A Reentrant (and LEDUpdate if both are used) control tag is normally the last line but may be placed anywhere in the macro.

LEDUpdate

You can use the "LEDUpdate" control tag to determine the state of a switch's LED. Enter an LEDUpdate control tag using the following format:

@LEDUpdate[*type*]

Any of the following types may be defined:

none	
allon	(all on)
alloff	(all off)
anyon	(any on)
anyoff	(any off)
preset	(on at preset)
notpreset	(loads not at preset)

For example, to turn the LED on if any loads are on, enter:

@LEDUpdate[anyon]

NOTE ☞ A load group must be assigned to the switch for the LEDUpdate control tag to have the desired effect. Using LEDUpdate with no group associated with the switch may cause the LED to be "on" continuously.

An LEDUpdate (and Reentrant if both are used) control tag is normally the last line but may be placed anywhere in the macro.

Event

An "Event" control tag identifies the type of event or action, beginning with the next program line and continuing either to the end of the program or to the next Event control tag. All macros must have at least one Event control tag. Use the following format to enter an Event control tag:

@Event[*type*]

The type of action must be consistent with the program type in order for it to run. Any of the following actions can be entered in the place of *type*:

ini	(startup event)
swp	(switch press)
swh	(switch hold)

swr (switch release)
tmb (timer begin)
tme (timer end)
usr (user event)

An Event tag can be placed at any location in the program, and multiple tags may be used, but each event type can only appear once in a macro. For example, Event tags are commonly used to define switch press, switch hold, and switch release functions in a program.

Remember that an Event control tag immediately affects all program statements that follow it, either to the end of the program or until another Event control tag is read.

Macro Examples

The following examples illustrate how macros are written.

Dimmer

```
@ProgramType[switch]
@DefineParam[Dimming Switch,switch,0]
@DefineParam[Dimming Group,group,0]
;Switch press event:
@Event[swp]
;The state variable is used to detect a hold event:
setstate(0)
end
;Switch hold event:
@Event[swh]
;The following lines cause the loads to ramp if the switch is
;held.
setstate(1)
GetLEDState(###1)
If(stack=0)
{
   SetLoadsOn(###2)
   wait(15)
}
StartRamp(###2)
end
;Switch release event:
@Event[swr]
```

```
;If ramping, stop the ramp, otherwise toggle the loads:
if(state=1)
{
   StopRamp(###2)
   term
}
ToggleLoadsOn(###2)
term
@LEDUpdate[allon]
```

Notice that all three events, switch press, switch hold, and switch release, have been programmed into the macro using Event tags. A simpler version of this program (a user program, not a macro) is shown in “Conditional Statements” on page 188.

Timed (On)

```
@ProgramType[switch]
@DefineParam[Timed Group,group,0]
;active time in tenths of seconds (e.g., 6000 is 10 minutes or
;600 sec.):
@DefineParam[Active Time (1/10 sec),value,6000]
@Event[swp]
;must be reentrant (set below)
SetLoadsOn(###1)
wait(###2)
SetLoadsOff(###1)
term
@LEDUpdate[allon]
@Reentrant[1]
```

This macro only needs the load group parameter for the timer to be established, since a default time entry has been included. However, if the time needs to be different from the default, the value will have to be changed.

In order for the LED update to work correctly, the load group must also be assigned to the switch. Notice that only a switch press event is programmed and that the switch is set for Reentrant. The Reentrant function causes the time to start over if the switch is pressed again.

Pathway Sequence

```
@ProgramType[switch]
@DefineParam[First Load Group,group,0]
@DefineParam[Second Load Group,group,0]
```

```
@DefineParam[Third Load Group,group,0]
@DefineParam[Delay to Turn On (1/10 sec),value,30]
@DefineParam[First Load Off Delay,value,3000]
@DefineParam[Second Load Off Delay,value,3000]
@DefineParam[Third Load Off Delay,value,3000]
@Event[swp]
;This macro sets a sequence of load groups to come on one
;at a time. It defaults to 3 seconds between each turn on and
;five minutes between each turn off.
SetLoadsOn(###1)
wait(###4)
SetLoadsOn(###2)
wait(###4)
SetLoadsOn(###3)
wait(###5)
SetLoadsOff(###1)
wait(###6)
SetLoadsOff(###2)
wait(###7)
SetLoadsOff(###3)
term
```

This macro requires load groups to be set up for each of the three steps. They are noted in the parameter setup as the “First,” “Second,” and “Third” load groups. There is no LED updating for the switch; therefore, no group needs to be assigned to the switch. Because the switch is not Reentrant, if pressed again, the program is duplicated.

Scene Dimmer

```
@ProgramType[switch]
@DefineParam[Scene Switch,switch,0]
@DefineParam[Scene Group,group,0]
@Event[swp]
setstate(0)
end
@Event[swh]
setstate(1)
GetLEDState(###1)
if(stack=0)
{
   SetLoadLevels(###2)
```

```
    wait(15)
}
StartRamp(###2)
end
@Event[swr]
if(state=1)
{
    StopRamp(###2)
    term
}
GetLEDState(###1)
if(stack=0)
{
    SetLoadLevels(###2)
    term
}
SetLoadsOff
term
```

In this program, if the loads are off, they fade to the preset levels when the switch is pressed and released. If the switch is held, they ramp as though assigned to a dimmer. When pressed and released again, they fade off. When turned back on, they return to the preset level using the fade-on times.

Three-Speed Fan Control Using Hunter Speed Controller

```
@ProgramType[switch]
@DefineParam[Fan Low Output,load,0]
@DefineParam[Fan Medium Output,load,0]
@DefineParam[Fan High Output,load,0]
@DefineParam[Low Setting Group,group,0]
@DefineParam[Medium Setting Group,group,0]
@DefineParam[High Setting Group,group,0]
@DefineParam[All Fans Off,group,0]
@Event[swp]
GetLoadState(###1)
;If at low, turn off.
if(stack=1)
{
    SetLoadsOff(###7)
    term
```

```
}
GetLoadState(###2)
;If at medium, turn to low.
if(stack=1)
{
   SetLoadsOff(###5)
   SetLoadsOn(###4)
   term
}
GetLoadState(###3)
;If at high, go to medium.
if(stack=1)
{
   SetLoadsOff(###6)
   SetLoadsOn(###5)
   term
}
;Otherwise, set to high.
SetLoadsOn(###6)
term
@LEDUpdate[anyon]
```

In this program, the load groups only contain the outputs needed for the specified speed and no others. For instance, the low group sets the low output at 100%. The medium group sets the medium and low outputs at 100%. The high group sets the high output at 100%. The “All Fans Off” group has all three outputs, but the levels aren't considered, because the group is only used to perform an “off.”

The “All Fans Off” group contains all three outputs and must be assigned to the switch to ensure that the LEDs function correctly. When done correctly, the LED is on whenever any of the outputs are on (i.e., if the fan is on, the LED is on).

Notes

Import/Export 14

The following import and export functions are available in LiteWare 3.8:

- Import Billing (import a billing file (*.txt*) exported from third-party software)
- Import Fixtures (import a fixture list (*.fix* file) exported from another project database file)
- Import LWJ File (import an *.lwj* database file from LiteWare 2.xx)
- Import 5000LC Program File (import a program file (*.prg*) that was downloaded from a 5000LC CCU)
- Import Standard Program File (import a *.def* file for a Standard CCU)
- Import Compact Program File (import a *.cdf* file for a Compact CCU)
- Import LW3.0 MDB (import an *.mdb* database file from LiteWare3.0 - 3.07)
- Import Loads (import a loads list (*.lod* file) exported from another project database file)
- Export Billing (create a billing file to import to third-party software)
- Export Fixtures (create a fixture list to import to another project database file)
- Export Program File (5000LC, Standard, or Compact, depending on the CCU selected in Job Parameters)
- Export MCS File (create an MCS file to upload to the master keypad)
- Export Loads (create a loads list to import to another project database file)
- To/From CCU (upload files to and download files from the CCU; set the 5000LC or Compact CCU clock; perform diagnostics on the 5000LC and Compact CCUs)

Import Options

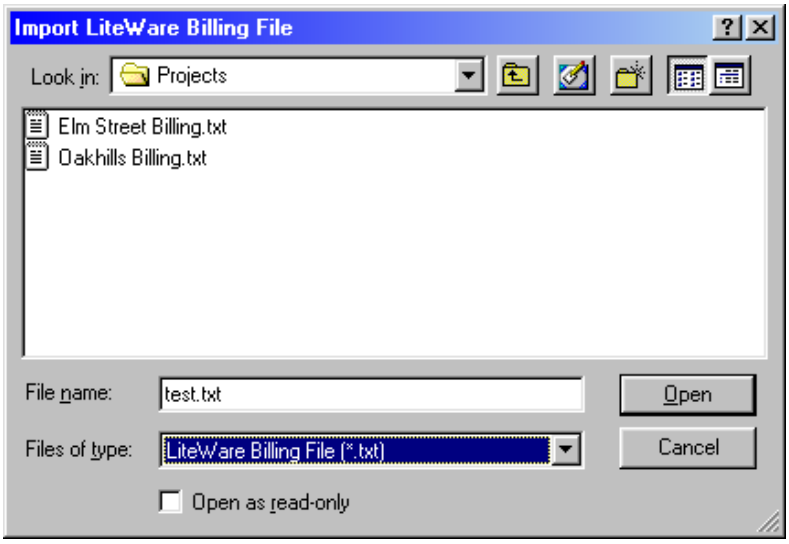
Import Billing

You can import billing information from your company's software or spreadsheet program into LiteWare 3.8. The file must be in a comma-delimited text format (*.txt*). The *Projects* folder is the default folder for all files to be imported.

NOTE ☞ Billing information imported into LiteWare 3.8 is added to the end of any existing billing information. If you want it to replace existing billing information, delete the existing information before you start the import.

To import billing information into the currently loaded job, do the following.

1. Select **Import** from the File menu and **Import Billing** from the submenu. The following dialog box is displayed.



   The *Projects* folder is opened, and all billing files (files with a *.txt* extension) in the folder are listed. If your billing files are located in a different folder, click and select the folder.

2. Click the file that you want to import, then click [**Open**] to start the import.

3. An Import Results prompt is displayed showing import detail and any errors that occurred during the import. Click [**OK**] to close the prompt.

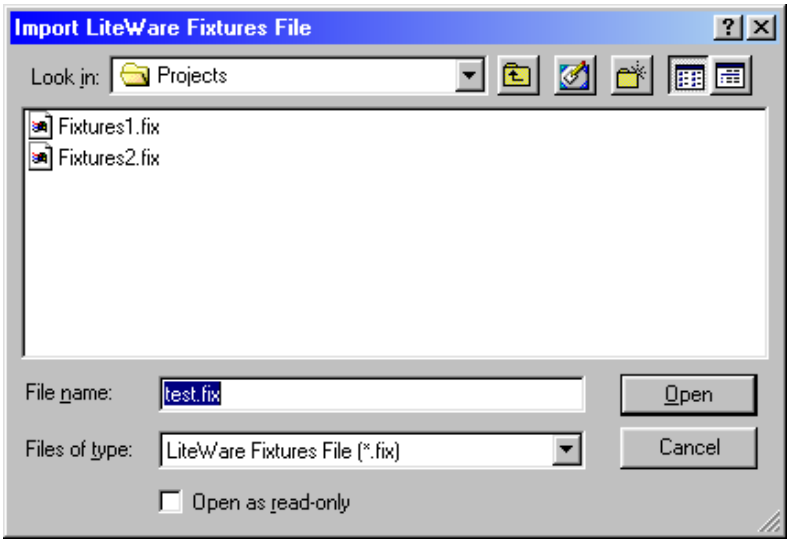
Import Fixtures

You can import a fixtures list from another project database file. First, you must export the list from the other project database file (refer to “Export Fixtures” on page 230), then open the database to which you want to import the list, and import the fixtures file that was created during the export.

A fixtures file has a “.fix” extension and is saved to the *Projects* folder by default.

1. Open the project database file that is to receive the fixtures list.

2. Select **Import** from the File menu and **Import Fixtures** from the sub-menu. The following dialog box is displayed.



   The *Projects* folder is opened, and all fixtures files (files with a “.fix” extension) in the folder are listed. If your files are located in a different folder, click and select the folder.

3. Click the file that you want to import, then click [**Open**] to start the import.

4. An Import Results prompt is displayed showing import detail and any errors that occurred during the import. Click [**OK**] to close the prompt.

Import LWJ File

Use this function to import job files from Liteware 2.xx into LiteWare 3.8. Most items, including custom keypads, are imported. However, items such as custom or data input keypads may not be editable in LiteWare 3.8. Elite CCU functions are converted to 5000LC functions.

The imported *.lwj* file is added to the current database file as a new job.

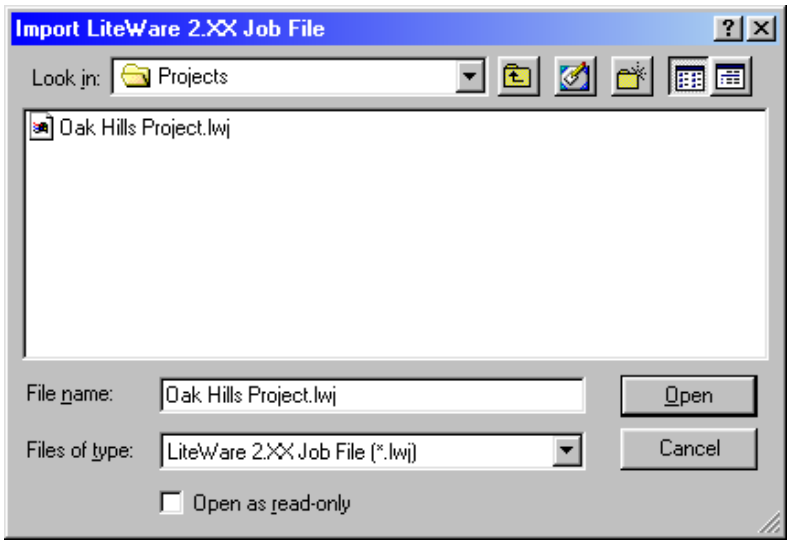
You can also convert and load an *.lwj* file into LiteWare 3.8 using the Open function. If you use Open to load an *.lwj* file, a new project database is created with only the job from the original database. The original *.lwj* file is retained. Refer to "Import LiteWare 2.xx Job File (*.lwj)" on page 35 for more information.

The *Projects* folder is the default folder for all files to be imported.

To import a 2.xx job file, do the following.

1. Load the project database that is to receive the file.

2. Select **Import** from the File menu and **Import LWJ File** from the submenu. The following dialog box is displayed.



   The *Projects* folder is opened, and all LiteWare 2.XX job files (files with an *.lwj* extension) in the folder are listed. If your files are located in a different folder, click and select the folder.

3. Click the file that you want to import, then click **[Open]** to start the import.

4. An Import Results box is displayed showing import detail and any errors that occurred during the import. Click **[OK]** to close the prompt.

   The *.lwj* file is imported into the open database as a new job with the same name as the original *.lwj* file.

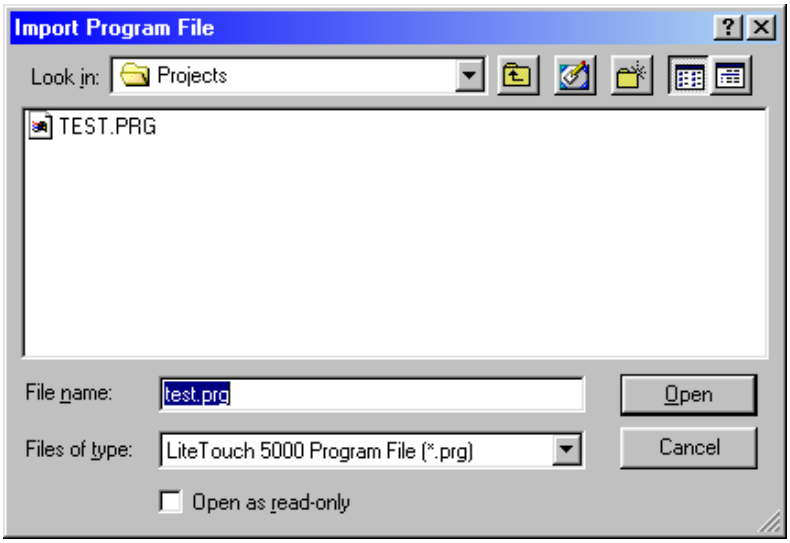
Import 5000LC Program File

To download a program file from the 5000LC CCU and import it into LiteWare 3.8, download the file using the "To/From CCU" option (refer to "Download a Program File from the CCU" on page 241), and use "Import 5000LC Program File" to import the program file into LiteWare 3.8. The imported program file is added to the current database as a new job.

NOTE ☞ To see the design information in a program file created in LiteWare 3.8, you must *open* the program file rather than importing it. (Program files that were created in an earlier version of LiteWare do not contain design information.)

1. Load the project database that is to receive the file.

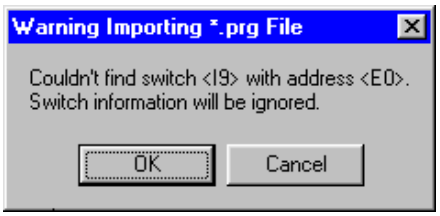
2. Select **Import** from the File menu and **Import 5000LC Program File** from the submenu, and the following dialog box is displayed.



   The *Projects* folder is opened, and all program files (files with a *.prg* extension) in the folder are listed. If your files are located in a different folder, click and select the folder.

3. Click the file that you want to import, then click **[Open]** to start the import. A new job with a default name (e.g., job3) is added to the open database, and the program file is imported into the new job.

If any problems occurred during the import, warning messages, such as the following, are displayed.



4. Make note of the information in all warning messages and manually update the specified items.

5. Refer to "Program File Import Limitations" on page 226 for information about limitations in the way the program file is converted to an active LiteWare 3.8 job.

Import Standard or Compact Program File

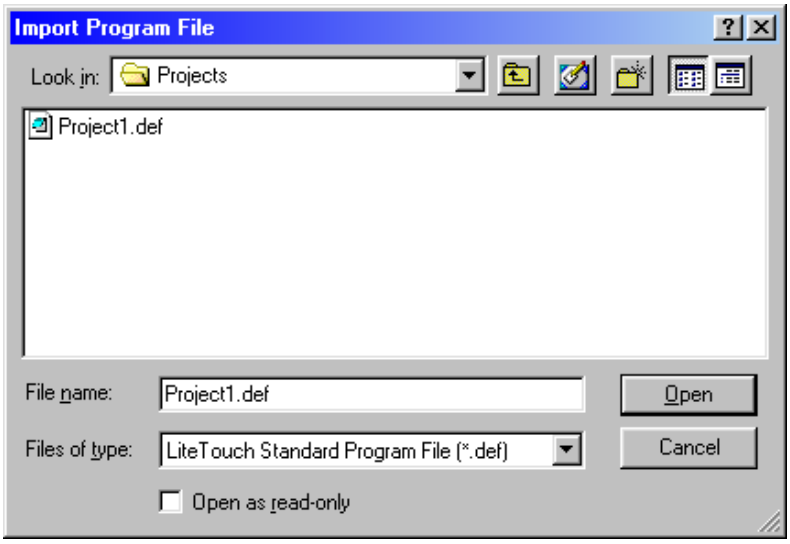
You can import a program file compiled for a Standard or Compact CCU into LiteWare 3.8. The program definitions can be taken from the program file (*.def* or *.cdf*), also called a definition file, or collectively from the other files associated with the job. All files related to the job must reside in the same folder. LiteWare will attempt to read all of the files, but only the definition file (*.def* or *.cdf*) is required. The data is imported into the currently opened project database file as a new job.

To import a Standard or Compact definition file, do the following:

1. Load the project database that is to receive the file.

2. Select **Import** from the File menu and either **Import Standard Program File** or **Import Compact Program File** from the submenu.

The Import Program File dialog box for either the Standard or Compact files is displayed.



3. The *Projects* folder is opened, and all definition files (files with a *.def* or *.cdf* extension) in the folder are listed. If your files are located in a different folder, click and select the folder.

4. Click the file that you want to import, then click **[Open]** to start the import.

   When you import a Standard/Compact program file, LiteWare looks for and attempts to read all of the files related to the job. If the date and time on the *.def* or *.cdf* file is earlier than the *.swp* file, the *.def* or *.cdf* file is ignored.

5. Warning messages may be displayed during the conversion. Make note of the information in all warning messages and manually update the specified items.

6. An Import Results box is displayed showing import detail and any errors that occurred during the import. If necessary, you can copy and paste the contents of the Import Results box into Notepad and save it. Click **[OK]** to close the box.

   A new job with a default name (e.g., job3) is added to the open database, and the program file is imported into the new job.

7. Refer to "Program File Import Limitations" below for information about limitations in the way the program file is converted to an active LiteWare 3.8 job.

Program File Import Limitations

An imported program file does not include information on locations, enclosure types, or module types.

Because a program file does not use locations, LiteWare 3.8 imports all loads to the "All" location. To establish locations, you must create new locations in the Parameters view and move the imported loads to their applicable locations in the Loads view. However, this is only necessary if you plan to use LiteWare 3.8's auto-assignment feature to add enclosures and modules and to reassign loads.

Because a program file does not identify modules, all modules in the imported job are classified as "Unknown Modules." All enclosures are classified as 4-module enclosures, and modules are placed in the enclosures in the order they are created.

The program identifies loads but does not identify the wattage used by loads. For this reason, the loads imported with a program file are classified as "zero watt loads." The missing data must either be manually added to the loads list or the loads must be manually assigned (see "Add a Module or Power Supply" on page 84 for information on manually adding loads).

If you are recreating a job in LiteWare 3.8 that has already been installed at a residence, you can manually select each module type using the information from the original enclosure schedule. Refer to "Edit a Module" on page 88 for information on selecting modules.

If you are using this information as the starting point for a new design job, you can delete the imported enclosures/modules and reassign them using LiteWare 3.8's auto-assignment feature after you have moved the loads to their correct locations.

In LiteWare 3.8, keypads, enclosures, and timers are listed in alphabetical order.

Import LW3.0 MDB

Use this function to import a project database file created in a previous version of LiteWare3.0 (3.0 - 3.07) into LiteWare 3.8. The *.mdb* file is converted to a new database file with an *.lwd* extension. The original *.mdb* file is retained unchanged so you can load it into an earlier version of LiteWare or use it as a backup that will load into either version of LiteWare.

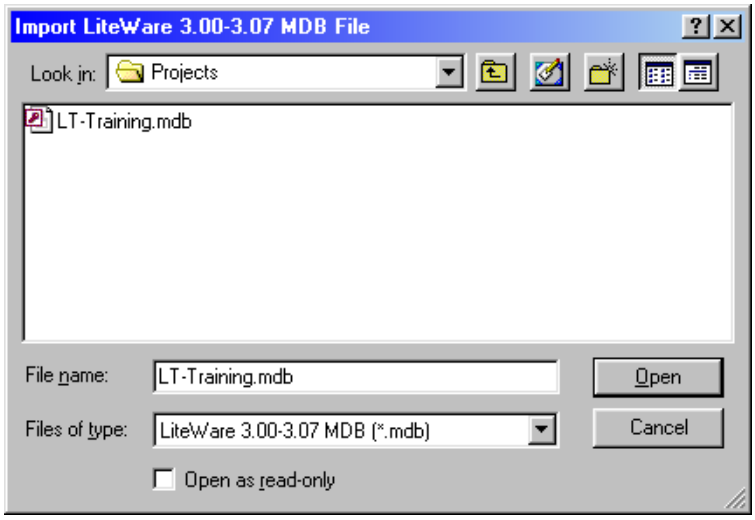
You can also convert and load an *.mdb* file into LiteWare 3.8 using the Open function. Refer to "Import LiteWare 3.0-3.07 Database File (*.mdb)" on page 35 for more information.

The *Projects* folder is the default folder for all files to be imported.

NOTE ☞ You do not have to open a project to import an .mdb file. If a project database is open when you import the file, the open database is closed and the converted file becomes the open project database.

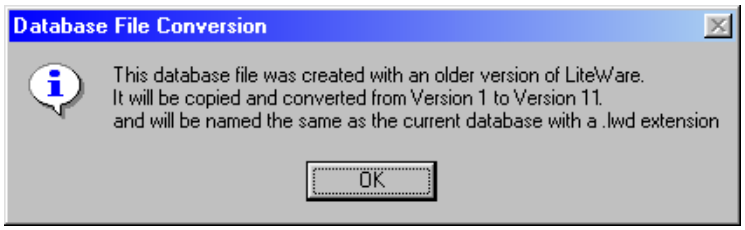
To import an *.mdb* database file, do the following.

1. Select **Import** from the File menu and **Import LW3.0 MDB** from the submenu. The following dialog box is displayed.



   The *Projects* folder is opened, and all LiteWare3.0 – 3.07 job files (files with an *.mdb* extension) in the folder are listed. If your files are located in a different folder, click and select the folder.

2. Click the file that you want to import, then click [**Open**] to start the import. The following message is displayed.


Database File Conversion
This database file was created with an older version of LiteWare.
It will be copied and converted from Version 1 to Version 11.
and will be named the same as the current database with a .lwd extension
OK

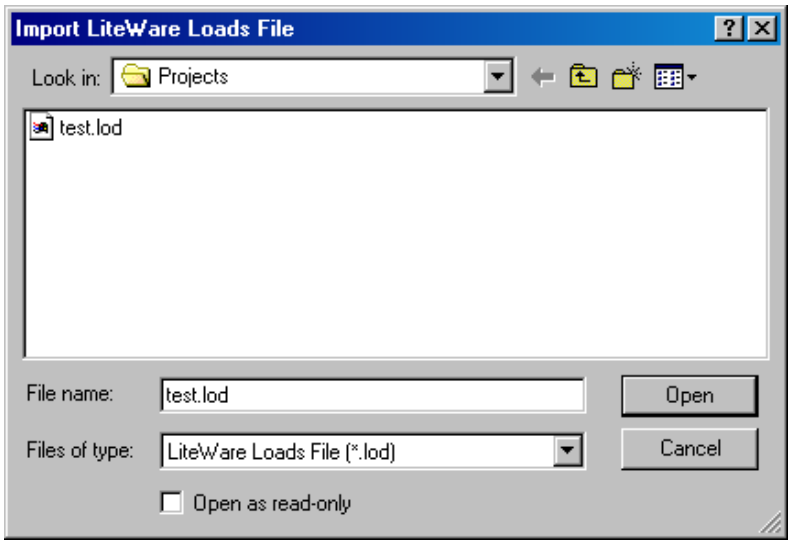
3. Click [**OK**]. The *.mdb* file is converted to a new database file with an *.lwd* extension and opened. The original *.mdb* file is retained unchanged so you can load it into an earlier version of LiteWare or use it as a backup that will load into either version.

Import Loads

You can import a loads list from another project database file. First, you must export the list from the other project database file (refer to “Export Loads” on page 235), then open the database to which you want to import the list, and import the loads file that was created during the export. A loads file has an “.lod” extension and is saved to the *Projects* folder by default.

1. Open the project database file that is to receive the loads list.

2. Select **Import** from the File menu and **Import Loads** from the submenu. The following dialog box is displayed.



   The *Projects* folder is opened, and all loads files (files with an “.lod” extension) in the folder are listed. If your files are located in a different folder, click and select the folder.

3. Click the file that you want to import, then click **[Open]** to start the import.

4. An Import Results prompt is displayed showing import detail and any errors that occurred during the import. Click **[OK]** to close the prompt.

Export Options

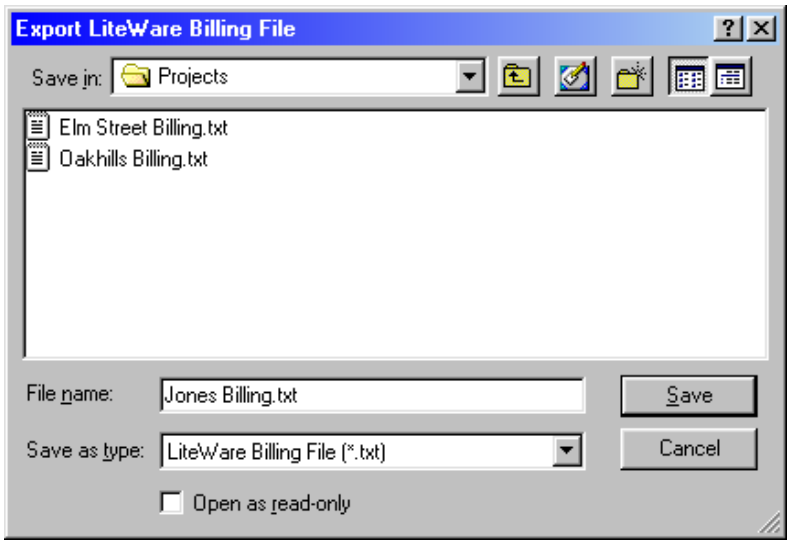
Export Billing

You can export billing information to a comma-delimited text file, which can be imported into a third-party application such as a spreadsheet program or your company's software.

NOTE ☞ Exported billing files are LiteWare 3.x compatible by default. If you want to import the billing file into LiteWare 2.xx, click **Billing Preferences** in the Billing view, and enable the Export option, "LW2XX Compatible."

To create a billing export file for the currently loaded job, do the following.

1. Select **Export** from the File menu and **Export Billing** from the submenu. The following dialog box is displayed.



2. Type the name that you want to give the exported billing file in the "File name" text box and click [**Save**]. A *.txt* extension is added to the file if you do not type it. The file is saved to the *Projects* folder.

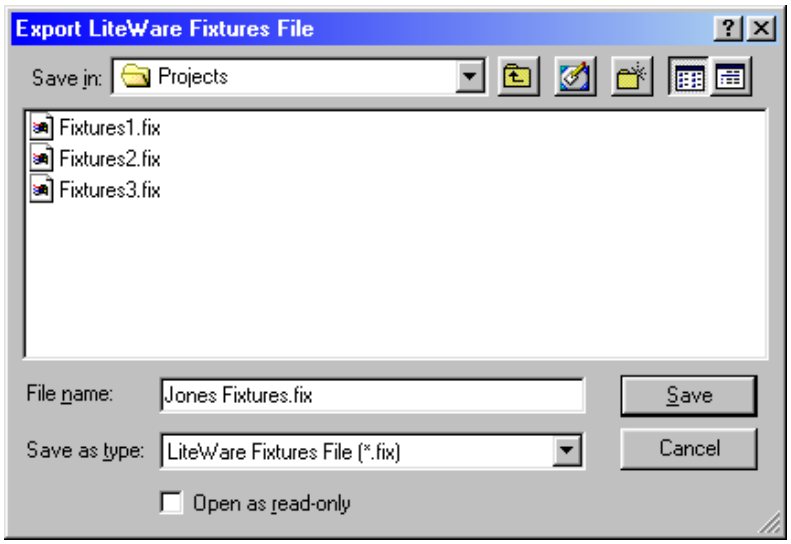
3. An Export Results prompt is displayed showing export detail and any errors that occurred. Click [**OK**] to close the prompt.

Export Fixtures

You can export a fixtures list from a project database file into a fixtures file that can then be imported into a different project database file. The export file is given a ".fix" extension and saved to the *Projects* folder.

Refer to "Import Fixtures" on page 221 for information on importing the fixtures list into a different project database.

1. Load the project database file from which you want to export fixture information, and select **Export** from the File menu and **Export Fixtures** from the submenu. The following dialog box is displayed.



2. Type the name that you want to give the exported fixtures file in the "File name" box and click **[Save]**. A ".fix" extension is added to the file if you do not type it. The file is saved to the *Projects* folder.

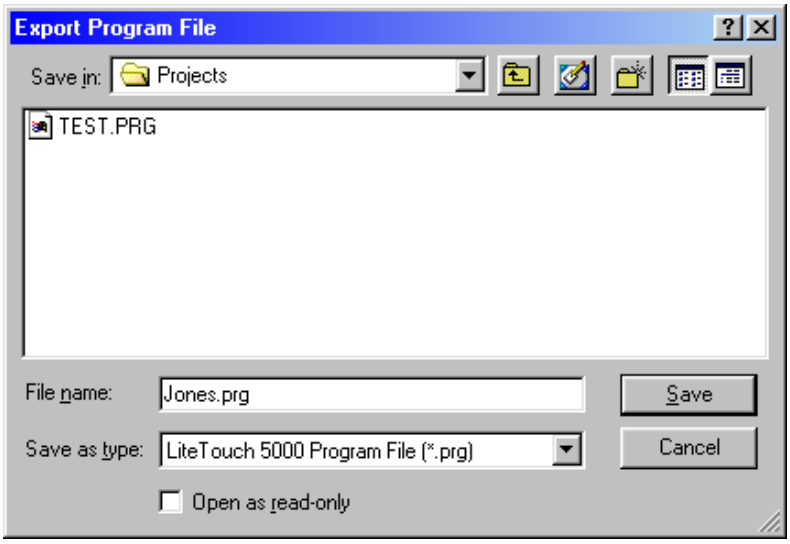
3. An Export Results prompt is displayed showing export detail and any errors that occurred. Click **[OK]** to close the prompt.

Export Program File

When you are ready to upload a job's programming code to the LiteTouch CCU, you must first convert it to a "program file" format. Use this function to create the program file. To upload the program file to the CCU, use the "To/From CCU" option (see "Upload a Program File to the CCU" on page 240). LiteWare 3.8 produces a program file for the type of CCU that you have specified for the job.

1. Open the job for which you want to create the program file.

2. Select **Export** from the File menu and **Export Program File** from the sub-menu. The dialog box shown below is for a 5000LC CCU.



   The Projects folder is opened, and any existing program files are listed, as follows:

   - For the 5000LC, files with a .prg extension
   - For the Standard CCU, files with a .def extension
   - For the Compact CCU, files with a .cdf extension.

   If your program files are located in a different folder, click to select the folder.

3. Type the name that you want to give the program file in the "File name" text box and click **[Save]**. The correct extension is added to the file if you do not type it.

   If you are copying over an existing file, click the file name to select it, then click **[Save]**.

4. An Export Results prompt is displayed showing export detail and any errors that occurred. Click **[OK]** to close the prompt.

   If you are creating a program file for a Standard or Compact CCU, the following files are created:

   - Main program (definition) file (*.def* for Standard, *.cdf* for Compact)

- DOS compatible, text files that contain the same information found in the definition file (*.swp*, *.nam*, *.tfp*, *.prm*, *.exl*, *.exs*, and *.ast*)

5. When you are ready to upload the program file to the CCU, use the "To/From CCU" option (see "Upload a Program File to the CCU" on page 240).

Error Checking of Program Files

Error checking and reporting are performed to ensure that blank instruction sets are not generated in the compiled file. Any switch press, timer begin, or user program must have valid instructions. If programming fails to compile, no programming for the switch or timer is generated. For example, if a switch hold program has errors, the switch press and release code is not compiled.

Unassigned loads are not exported to a program file. Warning messages indicate which loads have been excluded and which, if any, load groups have been affected.

Export MCS File

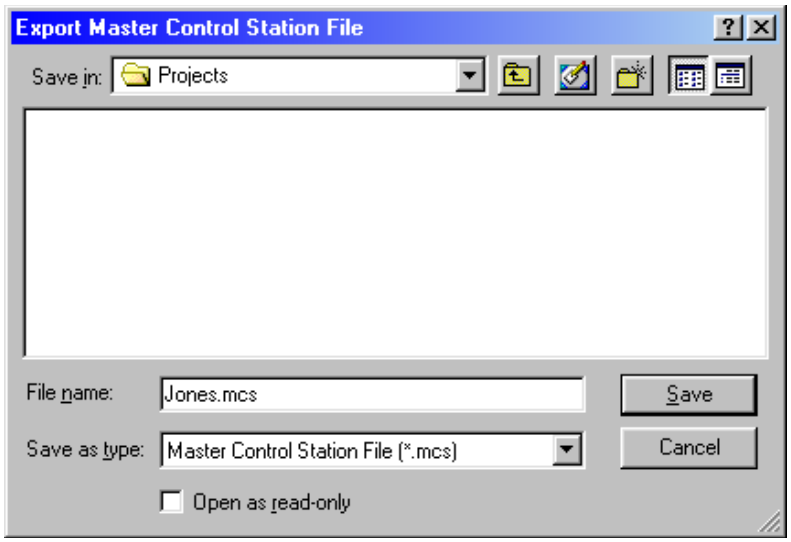
A master keypad or master control station (MCS) is programmed using a control program uploaded to it. When you are ready to upload the programming code to the master keypad, you must first convert it to an "MCS file" format. Use this function to create the MCS file. After you create the file, use the *mcs.exe* utility to upload the file to the master keypad.

The master keypad accepts a maximum of 32 keypads (gangs). Make sure the engraving information has been entered for all buttons as the master keypad will look for it in the file. If any engraving information is missing, a warning message is displayed during the export.

Since the master keypad is operated by the user, keypad descriptions (not keypad IDs) are used as the keypad names when the MCS file is created.

1. Open the job for which you want to create the MCS file.

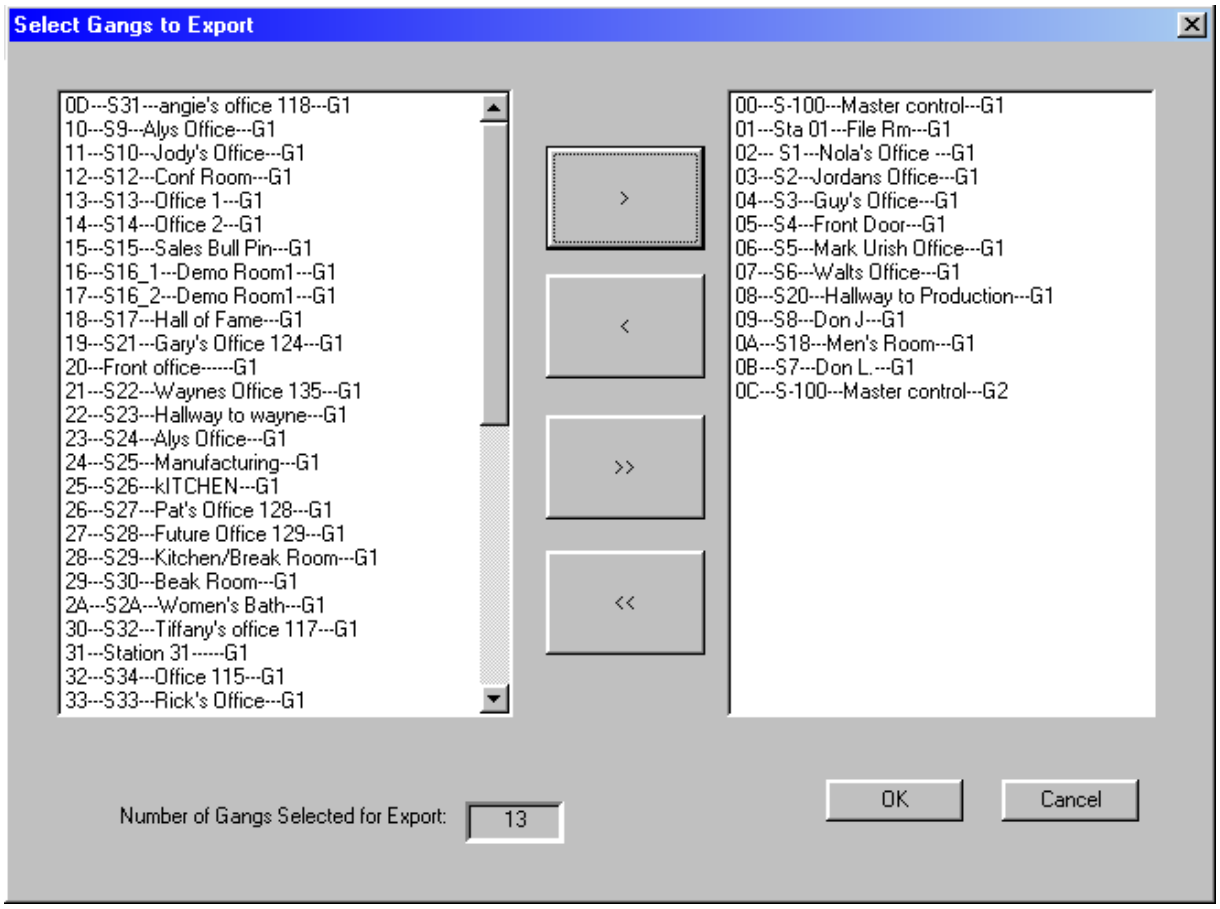
2. Select **Export** from the File menu and **Export MCS File** from the sub-menu. The following dialog box is displayed.



The *Projects* folder is opened, and any existing MCS files (files with an *.mcs* extension) are listed. If your MCS files are located in a different folder, click to select the folder.

3. Type the name that you want to give the MCS file in the "File name" text box and click **[Save]**. An *.mcs* extension is added to the file if you do not type it. If you are copying over an existing file, click the file name to select it, then click **[Save]**.

The following dialog box is displayed.



4. In the left-hand box, click the gangs or keypads that you want to upload to the master keypad. To select several consecutive gangs, press and hold **<Shift>**, then click the first and last gangs in the group you want to select. To select several non-consecutive gangs, press and hold **<Ctrl>**, then click each gang that you want to select. The number of gangs you selected appears in the text box at the bottom of the window.

5. After you have selected the gangs to export, click [>] to move the selected gangs to the right-hand box. Click [>>] to move all gangs from the left-hand box to the right-hand box.

   An MCS supports up to 32 gangs. If you select more than 32 gangs, the message "NOTE: A Master Keypad can only support 32 gangs!" appears under the right-hand box. To "deselect" or move gangs back to the left-hand box, select the gang or gangs to move, and then click [<]. Click [<<] to move all gangs from the right-hand box to the left-hand box.

NOTE ☞ To provide for future products that may also use an MCS file format, LiteWare 3.8 allows you to create an MCS file with more than 32 gangs, but you cannot upload a file with more than 32 gangs to the master keypad.

6. Click [**OK**] to create the MCS file. An Export Results prompt is displayed showing export detail and any errors that occurred. Take note of the keypad for which any warnings occurred so that you can correct the problem and create a new MCS file.

7. Click [**OK**] to close the Export Results prompt.

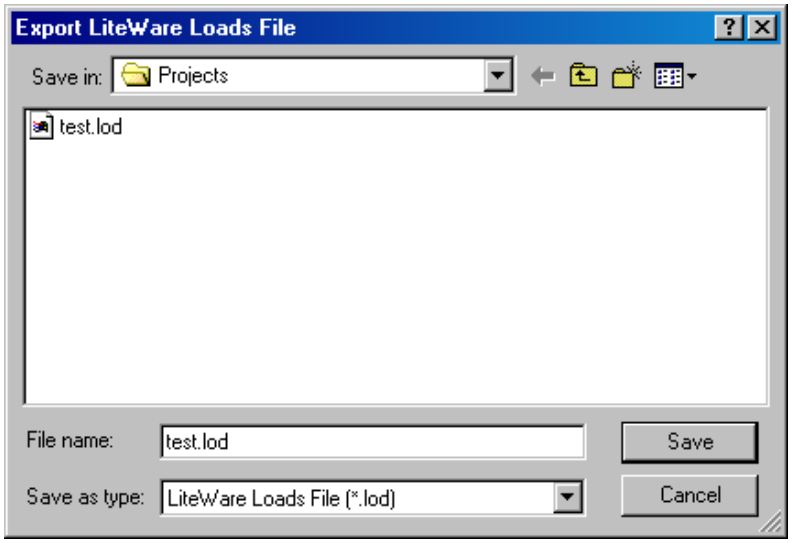
8. When you are ready to upload the file to the master keypad, use the *mcs.exe* utility.

Export Loads

You can export a loads list from a project database file into a loads file that can then be imported into a different project database file. The export file is given an ".lod" extension and saved to the *Projects* folder.

Refer to "Import Loads" on page 228 for information on importing the loads list into a different project database.

1. Load the project database file from which you want to export loads information, and select **Export** from the File menu and **Export Loads** from the submenu. The following dialog box is displayed.



2. Type the name that you want to give the exported loads file in the "File name" box and click [**Save**]. An ".lod" extension is added to the file if you do not type it. The file is saved to the *Projects* folder.

3. An Export Results prompt is displayed showing export detail and any errors that occurred. Click [OK] to close the prompt.

To/From CCU

Use the "To/From CCU" option to do the following:

- Set up communications with the CCU (below)
- Upload a program file to the CCU (page 240)
- Download a program file from the CCU (page 241)
- Set the CCU clock (page 242)
- Perform diagnostics on a 5000LC CCU (page 243)
- Perform diagnostics on a Compact CCU (page 251)

Set Up Communications

The 5000LC CCU may have an Ethernet/serial enabled CPU card with an Ethernet port or a standard CPU card with a serial port. The Standard and Compact CCUs have only a serial port.

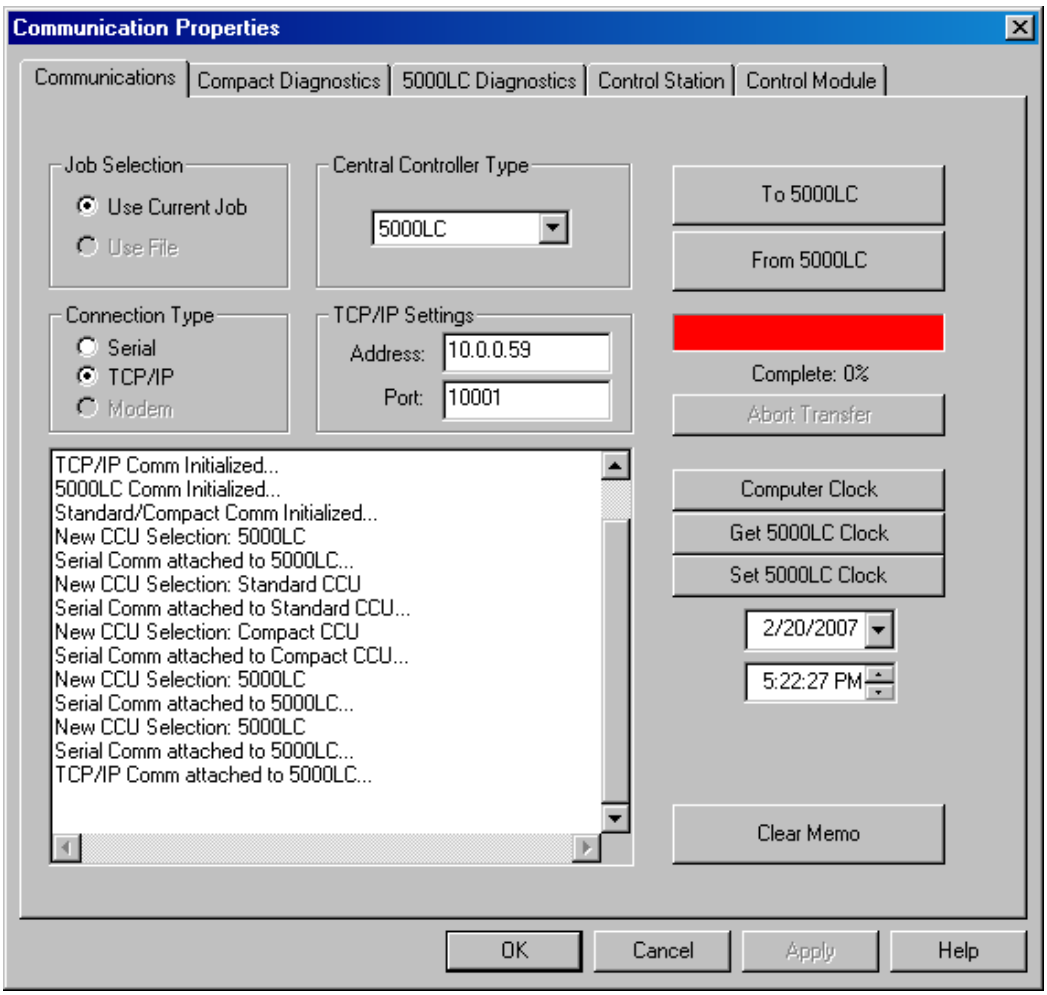
To set up communications between the computer and the CCU, follow the steps in the applicable section below.

Ethernet Port (5000LC only)

If the 5000LC is equipped with an Ethernet/serial enabled CPU card, you can use the TCP/IP connection to establish network communications with the CCU. To establish communications via the Ethernet port, do the following.

1. Connect a network cable to the Ethernet port on the 5000LC and to your network. If you are connecting a computer to the 5000LC, you need to use a cross-over network cable. You can connect the network cable to the CCU with power turned on. You can also use a wireless Ethernet router connected to the Ethernet port on the CCU.

2. In LiteWare, select **To/From CCU** from the File menu, and the following dialog box is displayed.



3. If necessary, at the "Central Controller Type" field, click ▼ and select **5000LC**. "5000LC" now appears on the buttons in the dialog box and in the title bar of the communications dialog boxes.

4. At the "Connection Type" field, select **TCP/IP**.

5. Under "TCP/IP Settings" enter the IP address and port.

   Address
   Enter an IP address for the Ethernet/serial enabled CPU card. If the card is using its originally assigned address, enter the number from the sticker on the front of the card. If the server has assigned the 5000LC a different address, you need to obtain the address from the network administrator.

Port
Enter the 5000LC port number, which is 10001.

NOTE ☞ The Ethernet/serial enabled CPU card is shipped with a static IP address of 192.168.0.3 and is DHCP (Dynamic Host Control Protocol) disabled. If you want to use the Ethernet/serial enabled CPU card in an existing LAN, contact your network administrator to help you set up the card with your network's settings. Use XPort Installer (on LiteTouch's Web site, www.litetouch.com) to change the IP address and enable DHCP. If you have enabled DHCP with XPort Installer, when connecting the 5000LC to your network, cycle the 5000LC's power off and back on to force the server to assign an address to the 5000LC.

6. Refer to the next section, "Upload a Program File to the CCU" for information on uploading the program file after you set up communications.

Serial Port

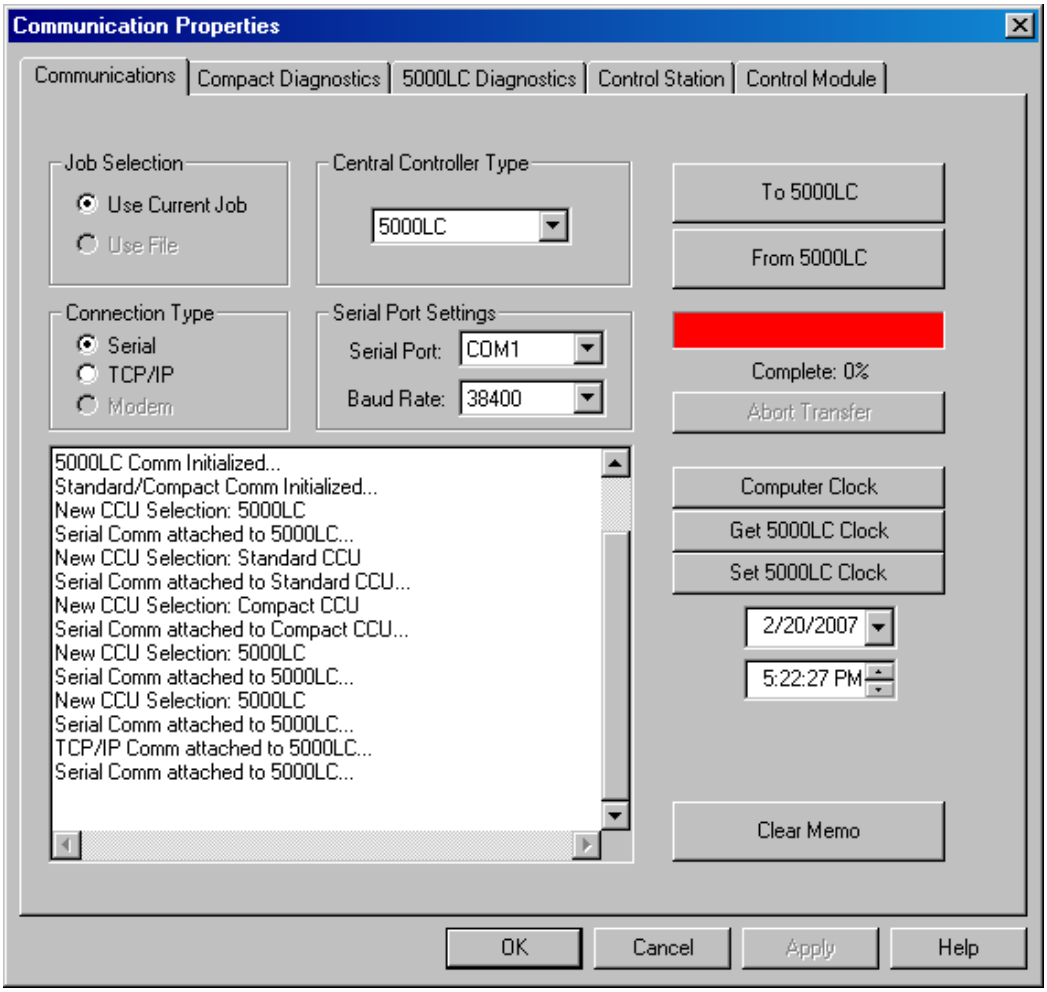
To establish communications via a serial port (5000LC, Standard, or Compact CCU), do the following.

1. If a serial cable is not already connected to your computer, turn off the computer, and connect the proper serial cable to the computer's serial port.

2. Connect the serial cable from the computer to the CPU card in the CCU. You can connect the serial cable to the CCU with power turned on.

3. Turn your computer back on, if necessary, and start LiteWare 3.8.

4. Select **To/From CCU** from the File menu, and the following dialog box is displayed.



5. At the “Central Controller Type” field, click ▼ and select the CCU type. The selected CCU type appears on the buttons in this dialog box and in the title bar of the communications dialog boxes. (5000LC is shown in the screen images in this manual.)

6. At the “Connection Type” field, select **Serial**.

7. Under “Serial Port Settings” select the serial port and baud rate.

   Serial Port

   If the serial port shown is not correct, click ▼ and select the serial port on the computer to which you connected the serial cable.

   Baud Rate

   If the displayed baud rate of the serial port is not correct, click ▼ and select the correct rate.

8. Refer to the next section, "Upload a Program File to the CCU" for information on uploading the program file after you set up communications.

Upload a Program File to the CCU

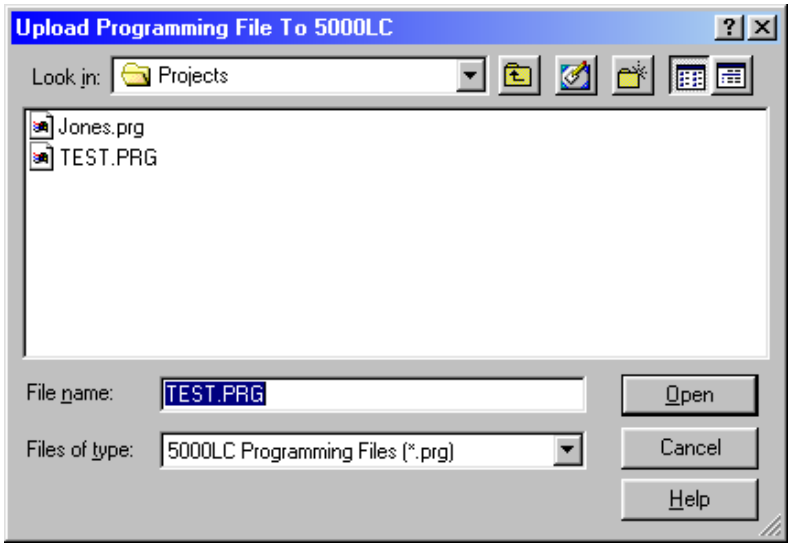
Do the following to upload a program file to the CCU:

1. Create a program file for the job you want to upload (refer to "Export Program File" on page 230 for information).

2. Select **To/From CCU** from the File menu.

3. Set up communications with the CCU as described in "Set Up Communications" on page 236.

4. Click the **[To 5000LC/Standard/Compact]** button, and the following dialog box is displayed.



The *Projects* folder is opened, and any existing program files are listed, as follows:

- For the 5000LC, files with a *.prg* extension
- For the Standard CCU, files with a *.def* extension
- For the Compact CCU, files with a .c*df* extension.

If your program files are located in a different folder, click to select the folder.

5. Click the file that you want to upload and click [**Open**]. The dialog box is closed, and the program file is uploaded to the CCU. The bar in the Communication Properties dialog box (under the [**To 5000LC/Standard/Compact**] button) indicates the progress of the upload. Messages relating to the upload are displayed in the Memo box.

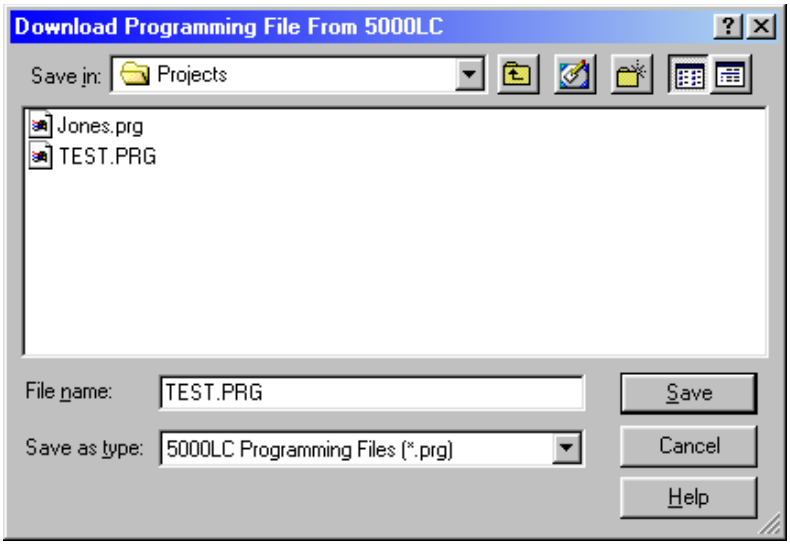
NOTE ☞ When you upload a program file to the 5000LC CCU, the project database information from the *.lwd* file is included in the program (*.prg*) file. When the program file is downloaded from the CCU and opened in LiteWare, any changes made to the program while it was in the CCU are automatically updated in the LiteWare database file. If the combined program file and database information is too large to upload, a message appears and only the program file is uploaded. (The design information saved in the program file is not visible if the program file is *imported* into LiteWare. You must *open* the *.prg* file to view the design information.)

NOTE ☞ If there is a problem with communications, you can click [**Abort Transfer**] to cancel the upload rather than waiting for the computer to time out.

Download a Program File from the CCU

Do the following to download a program file from the CCU:

1. Select **To/From CCU** from the File menu.
2. Set up communications with the CCU as described in "Set Up Communications" on page 236.
3. Click [**From 5000LC/Standard/Compact**] and the following dialog box is displayed.



The *Projects* folder is opened, and any existing program files are listed. If your program files are located in a different folder, click to select the folder.

4. Type the name that you want to give the program file in the "File name" text box. The correct extension is added to the file if you do not type it.

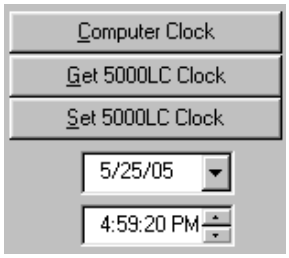
5. Click [**Save**]. The dialog box is closed, and the program file is downloaded from the CCU. The colored bar in the Communication Properties dialog box (under the [**From 5000LC/Standard/Compact**] button) indicates the progress of the download. Messages pertaining to the download are displayed in the Memo box.

NOTE ☞ When you upload a program file to the 5000LC CCU, the project database information from the *.lwd* file is included in the program (*.prg*) file. When the program file is downloaded from the CCU, any changes made to the program while it was in the CCU are automatically updated in the LiteWare database file. If the combined program file and database information is too large to upload, a message appears and only the program file is uploaded. (The design information saved in the program file is not visible if the program file is *imported* into LiteWare. You must *open* the *.prg* file to view the design information.)

NOTE ☞ If there is a problem with communications, you can click [**Abort Transfer**] to cancel the download rather than wait for the computer to time out.

Set the CCU Clock

Use the functions shown below to set the clock on the CCU:

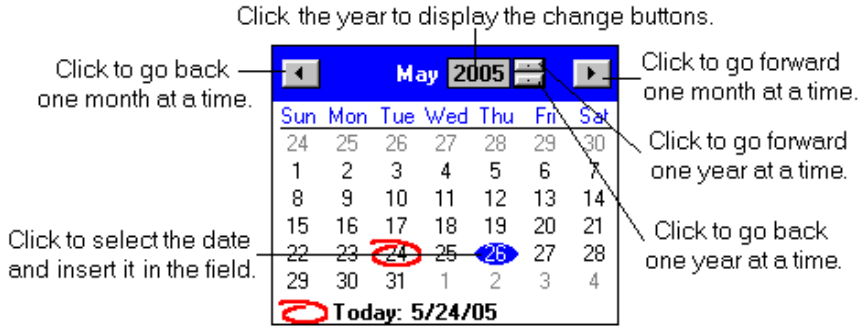


Get *(CCU)* Clock Click this button to retrieve the current date and time setting from the 5000LC or Compact CCU clock to determine if it needs to be reset. The date and time are displayed below the buttons.

NOTE ☞ You cannot retrieve the date and time on a Standard CCU. However, the date and time are shown on the front panel of the CCU's display.

Computer Clock Click this button to get the current time and date from your computer's clock. The date and time are displayed below the buttons. The time does not automatically update; it is updated each time you click [**Computer Clock**]. You will want to get the current time just before setting the CCU clock.

To manually enter the date, in the date box, click ▼ and select the date from the calender, as shown below:


Click the year to display the change buttons.
Click to go back one month at a time.
Click to go forward one month at a time.
Click to go forward one year at a time.
Click to go back one year at a time.
Click to select the date and insert it in the field.
May 2005
Sun Mon Tue Wed Thu Fri Sat
Today: 5/24/05

To manually set the time, click the hour, minutes, seconds, or AM/PM. The selected section is highlighted. Click the up and down selection arrows to go forward or back one digit at a time, or change from AM to PM and vice versa. The time does not automatically update. You will want to set the current time just before setting the CCU clock.

Set (*CCU*) Clock With the current time shown in the boxes below the buttons, click [**Set (*CCU*) Clock**] to send the date and time to the CCU's clock. Because the time is not automatically updated, you should click this button immediately after updating the time, or you can manually adjust the time to a few seconds ahead.

NOTE ☞ If there is a problem with communications, you can click [**Abort Transfer**] to cancel communications with the CCU rather than waiting for the computer to time out.

5000LC CCU Diagnostics

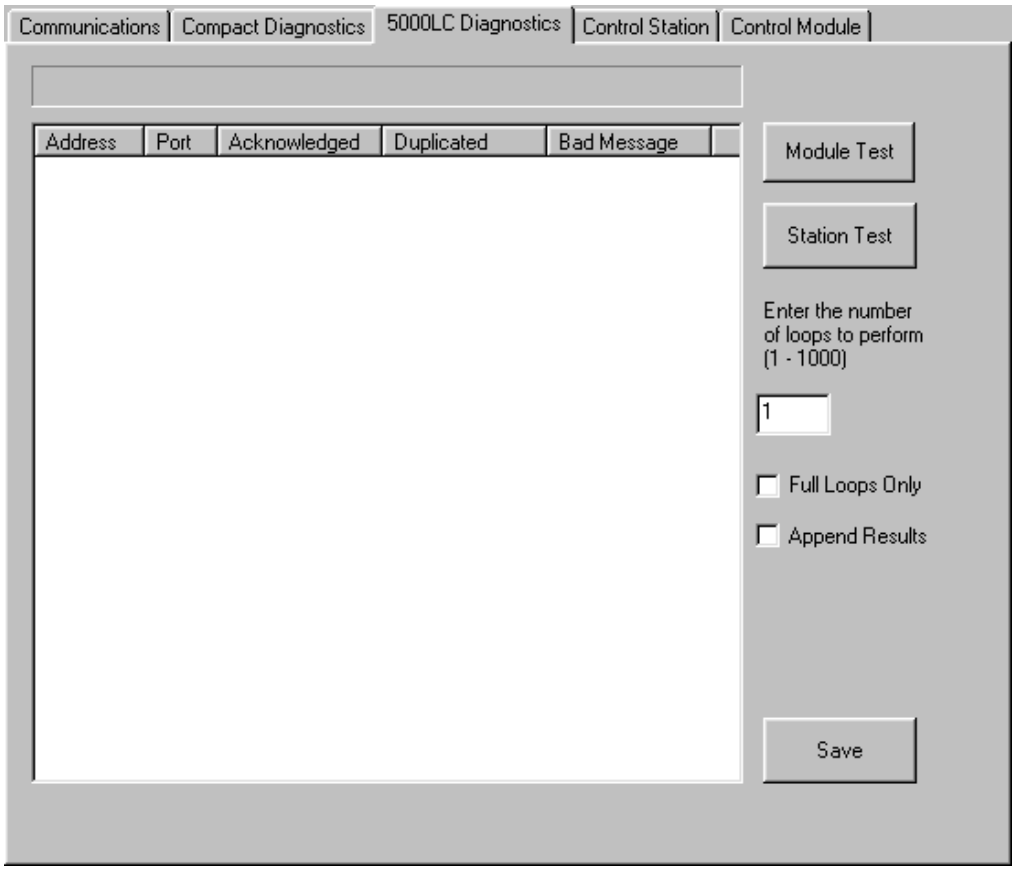
Use the functions on the 5000LC Diagnostics tab to perform control module and keypad tests on the 5000LC CCU.

1. Select **To/From CCU** from the File menu.

2. Set up communications with the 5000LC CCU as described in "Set Up Communications" on page 236.

3. Click ▼ at the "Central Controller Type" field, and select **5000LC**. The 5000LC Diagnostics tab is enabled.

4. Click the 5000LC Diagnostics tab, and the following screen is displayed.



Module Test Click [**Module Test**] to start the control module communications test. Enter the number of loops that you want the test to run in the text box (from 1 to 1000). The more loops run, the more thorough the test. After the test has started, the button changes to [**Cancel Test**], which you can click to stop the test at any time (the test stops after the current loop is completed).

If the program file is open, test results for all modules specified in the program file, as well as responses from any modules that are not in the program file, are listed in the test results box (see "Test Results" on page 245). Modules that do not respond are identified as "missing or phantom," and modules that respond but are not in the program file are identified as "not programmed." If the program file is not open, only modules that respond during the test are listed. Non-responding modules must be identified by their absence.

Station Test Click **[Station Test]** to start the keypad test. Enter the number of loops that you want the test to run in the text box (from 1 to 1000). The more loops run, the more thorough the test. After the test has started, the button changes to **[Cancel Test]**, which you can click to stop the test at any time (the test stops after the current loop is completed).

If the program file is open, test results for all keypads specified in the program file, as well as responses from any keypads that are not in the program file, are listed in the test results box (see "Test Results" below). Keypads that do not respond are identified as "missing or phantom," and keypads that respond but are not in the program file are identified as "not programmed." If the program file is not open, only keypads that respond during the test are listed. Non-responding keypads must be identified by their absence.

Full Loops Only The first loop of a keypad or module test is always a complete loop that attempts communication with every address (00 through FF). If more than one loop is specified for the test, subsequent loops will only check addresses that responded during the first loop. If you want to attempt communication with every address during every loop, select this option. This can help to identify keypads or modules that are reporting inconsistently; however, testing will take much more time if this option is selected.

Append Results Select this option if you want the current test results to be appended to the end of the previous test results. You can only append test results from similar tests (i.e., you can append results from multiple keypad tests, but you cannot append keypad test results to module test results). This option does not change how the test is conducted, only how the results are displayed.

Save Click **[Save]** to save the data displayed in the test results box to a text file. A Save Test Results dialog box is displayed with the *Projects* folder selected. If necessary, change to a different folder. Type the name that you want to give the text file in the "File name" text box, and click **[Save]**. The file is saved in a standard text file (.txt) format and can be opened in most text editors.

Test Results

Test results are displayed in the test results box of the Diagnostics tab in the following columns:

Address This column lists the module or keypad addresses that responded to the test. Addresses consist of two hexadecimal digits ranging from 00 to FF and are physically set to each keypad and/or module with adjustable addressing wheels. The addresses are listed in hexadecimal address order. Addresses reporting more than once (on different ports) appear as multiple entries in this column.

Port The CCU port (1 through 4) to which the module or keypad is assigned is displayed in this column. Duplicate addresses (on different ports) are easily recognized due to the order in which the addresses are listed and appear as multiple entries on separate ports. Duplicate address responses on the same port are listed in the "Duplicated" column.

Acknowledged The number in this column should increment by one with every test loop completed for each keypad or module. If the keypad or module is communicating properly, the final number in this column will be equal to the number of loops specified for the test. If the final result is less than the number of loops run, this could indicate that the keypad or module is malfunctioning. Errors are typically indicated in the "Bad Message" column.

Duplicated (only applies to keypad tests) This column lists any duplicate responses from a keypad with the same address on the same port. Only duplicate responses from keypads that are separated by a significant distance are reported. Keypads with the same address that are close together are not reported due to communication speeds.

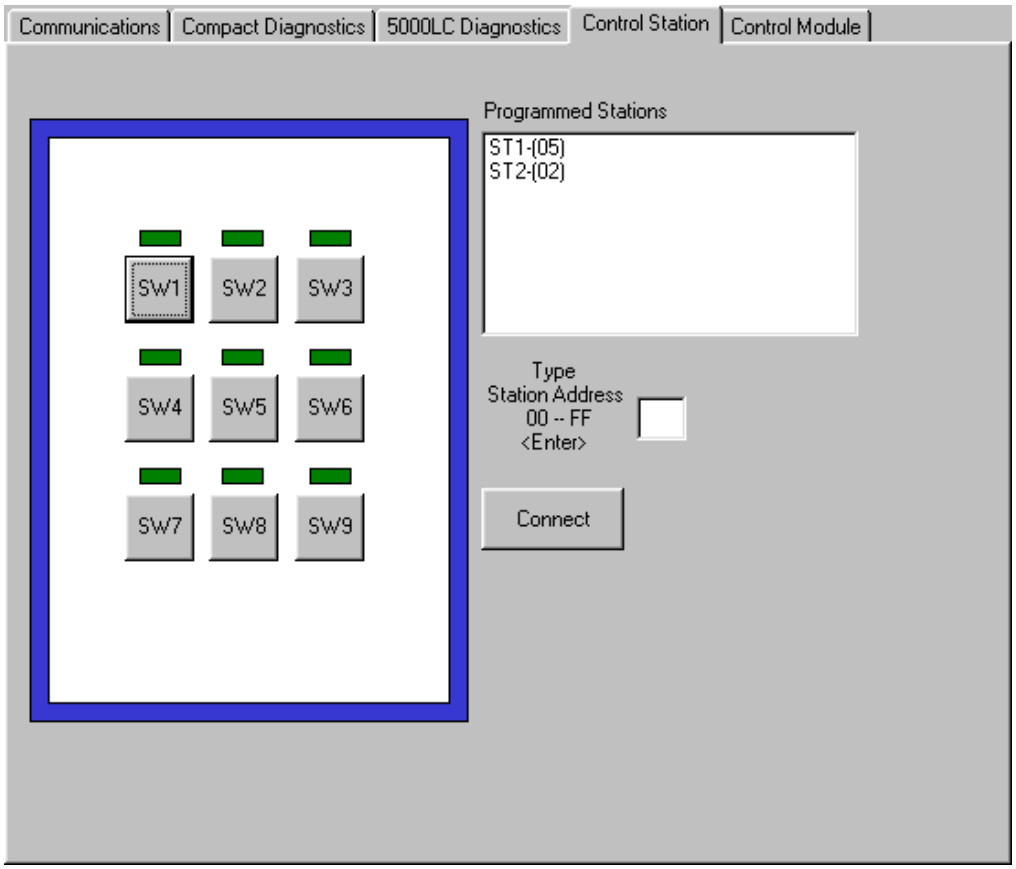
Bad Message Incorrect responses from addressed keypads or modules are indicated in this column. A bad message may result from inconsistent responses from a keypad or module, which could be an indication of a potential failure. Typically, this results in a mixture of "acknowledged" and "bad message" responses with neither equaling the number of loops run.

"False" bad messages may result from either of the following:

- Infrared (IR) keypads may respond with a bad message due to the lack of the ninth LED.
- During a module test, if an address that is not physically present reports a "bad message," it may be caused by a 6-channel module at the previous address. 6-channel dimmer and relay modules respond with an additional character causing the next address (if nonexistent) to appear to have an invalid response.

Control Station Tab

The Control Station tab contains a diagram of a nine-button keypad, which you can use to simulate operation of any keypad in the LiteTouch system. The keypad diagram consists of keypad buttons and LEDs, which you can use to actually operate buttons on a keypad and receive feedback at the computer.



If the program file is open, in the Programmed Stations list, locate the keypad that you want to operate (use the scroll bar if necessary) and click it. Its address is entered into the "Station Address" box. If the program file is not open, enter the address of the keypad you want to test (00 to FF). Click **[Connect]** to connect to the CCU, and the keypad's simulated LEDs are updated to reflect the current status of the keypad. The simulated keypad is ready to operate (see "Keypad Simulation" below for additional information).

The **[Connect]** button changes to **[Disconnect]** after you click it. Click **[Disconnect]** at any time to disconnect from the CCU and stop the simulation.

Keypad Simulation

The diagram has nine buttons so that all keypad types are represented. If the keypad you want to simulate has less than nine buttons, use only the appropriate button positions (shown in the following tables) in your simulation. For example, if you entered the keypad address for a six-button "S" series keypad, use only buttons 1, 3, 4, 6, 7, 9 on the simulated nine-button keypad to control the actual keypad.

"S" Series Keypad	
Number of Buttons	Button Position
1	5
2	2, 8
3	2, 5, 8
4	1, 3, 7, 9
5	1, 3, 5, 7, 9
6	1, 3, 4, 6, 7, 9
7	1, 3, 4, 5, 6, 7, 9
8	1, 2, 3, 4, 6, 7, 8, 9
9	1, 2, 3, 4, 5, 6, 7, 8, 9

"H" Series Keypad 1–5 Button	
Number of Buttons	Button Position
1	6
2	4, 6
3	2, 4, 6
4	2, 4, 6, 8
5	2, 4, 6, 8, 9

"H" Series Keypad 6–9 Button	
Number of Buttons	Button Position
6	3, 4, 5, 6, 7, 8
7	3, 4, 5, 6, 7, 8, 9
8	1, 2, 3, 4, 5, 6, 7, 8
9	1, 2, 3, 4, 5, 6, 7, 8, 9

"E" Series Keypad 1–4 Button (Single Gang)	
Number of Buttons	Button Position
1	1
2	1, 3
3	1, 2, 3
4	1, 2, 3, 4

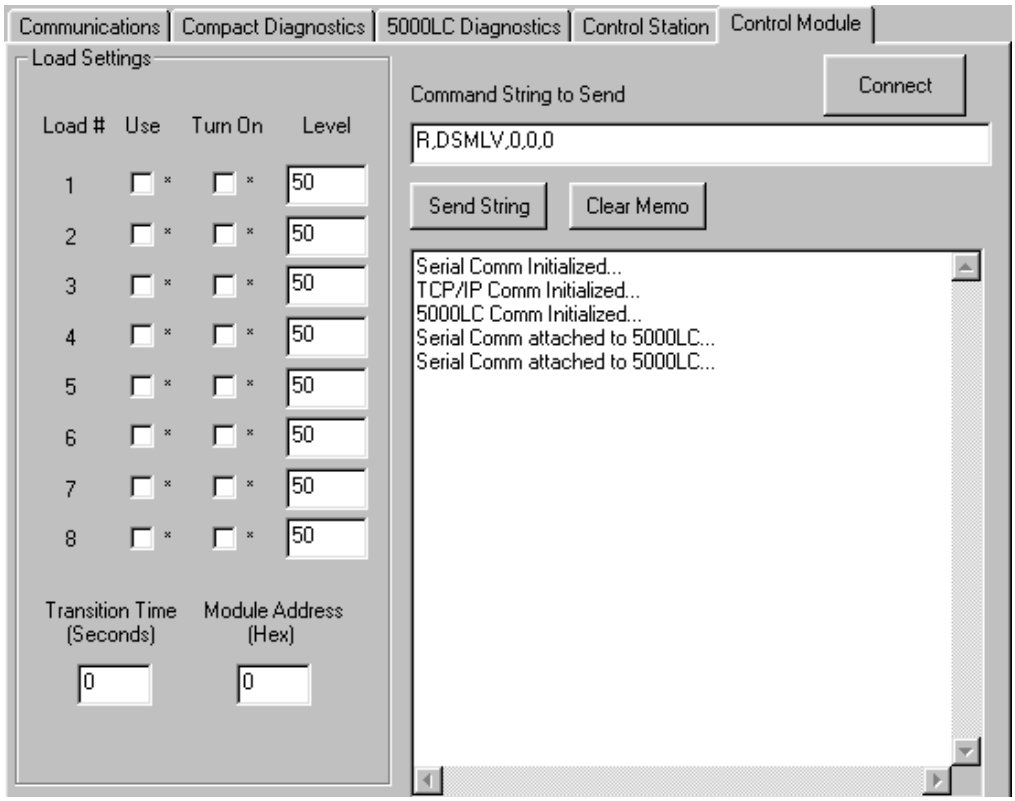
"E" Series Keypad 5–8 Button (Dual Gang)	
Number of Buttons	**Button Position**
5	1, 2, 3, 4, 5
6	1, 2, 3, 4, 5, 6
7	1, 2, 3, 4, 5, 6, 7
8	1, 2, 3, 4, 5, 6, 7, 8

Click a button or click and hold the mouse button to initiate press, hold, and release actions on any button. As you press and release, the LED updates to show the button's status.

LEDs do not automatically update on the simulated keypad if another source affects the loads (e.g., a user activating a switch). To see the current state of an LED on the screen, type the address and click [**Connect**] again.

Control Module Tab

The Control Module tab allows you to test CCU-to-module communications. You specify a module to test and what you would like the module to do with each of its assigned loads. You can then see the response that the control module makes both on-screen and by checking the load directly.



Module List If the program file is open, the modules are listed. Select the module you want to test, and click [**Connect**] to connect to the CCU. The address is inserted into the "Module Address" box.

Module Address If the program file is not open, enter the address of the module to be tested, and click [**Connect**] to connect to the CCU.

The [**Connect**] button changes to [**Disconnect**] after you click it. Click [**Disconnect**] at any time to disconnect from the CCU and stop the test.

Load Settings This section is designed to be used with all types of standard line voltage modules. A load level can be specified for dimmer modules. The level for a relay module is always either 100 (full) or 0 (off).

Use
Select this option if you want to use the load included in the test.

Turn On
Select this option if you want the load to be turned on to the specified level. If not selected, it is turned on at level 0.

Level
Enter the dim value for the load, with 100 being full and 0 being off.

Transition Time Specify in seconds the ramping time for the load to read the specified level.

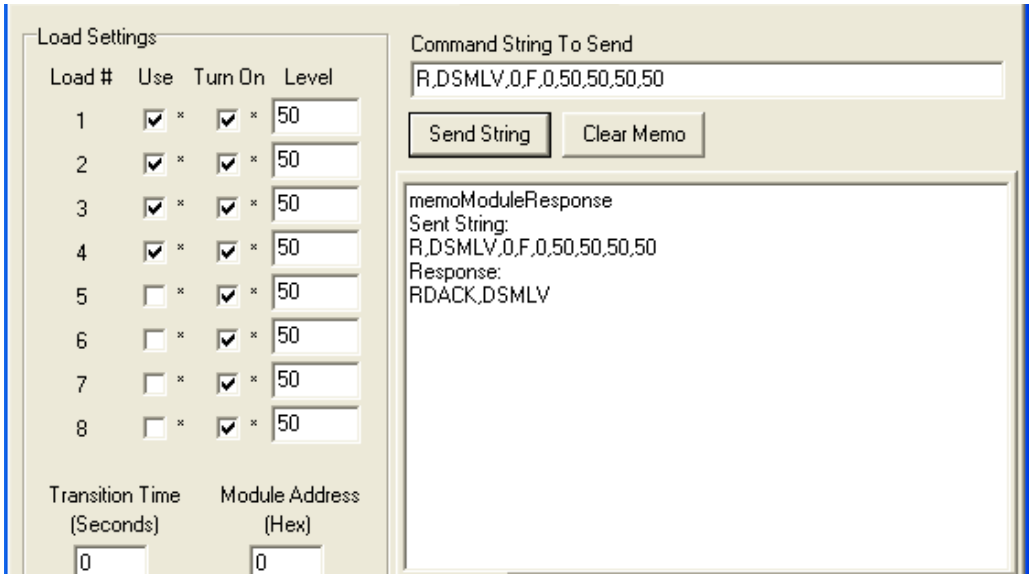
Command String to Send This is the command string that is sent to the 5000LC. It is shown for reference only and should not be changed.

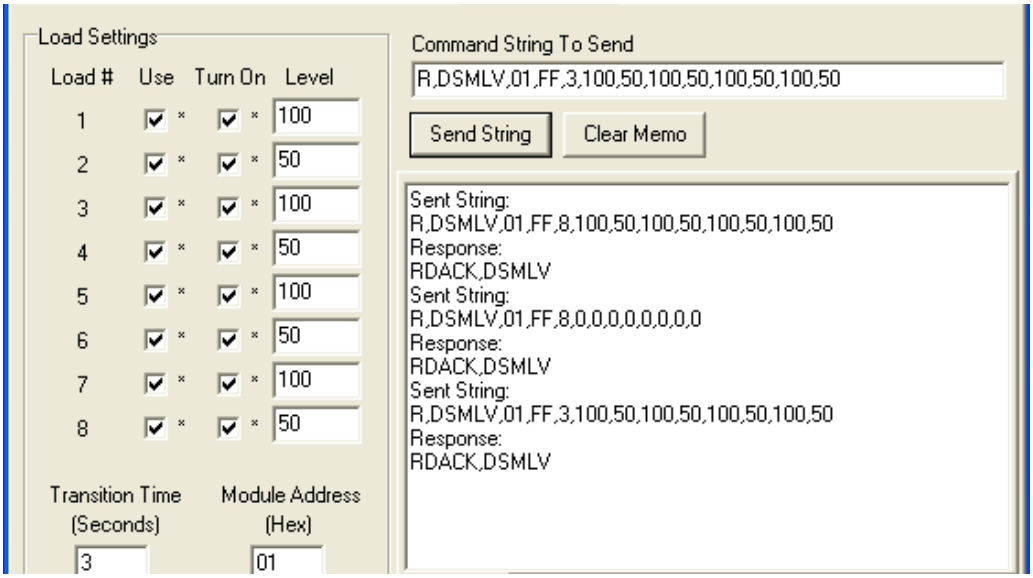
Send String Click [**Send String**] to send the string in the "Command String to Send" box to the specified module.

All messages generated as a result of the communication are displayed in the message box.

Clear Memo Click [**Clear Memo**] to remove all messages from the message box.

The following images show two control module tests and the resulting messages.





Compact CCU Diagnostics

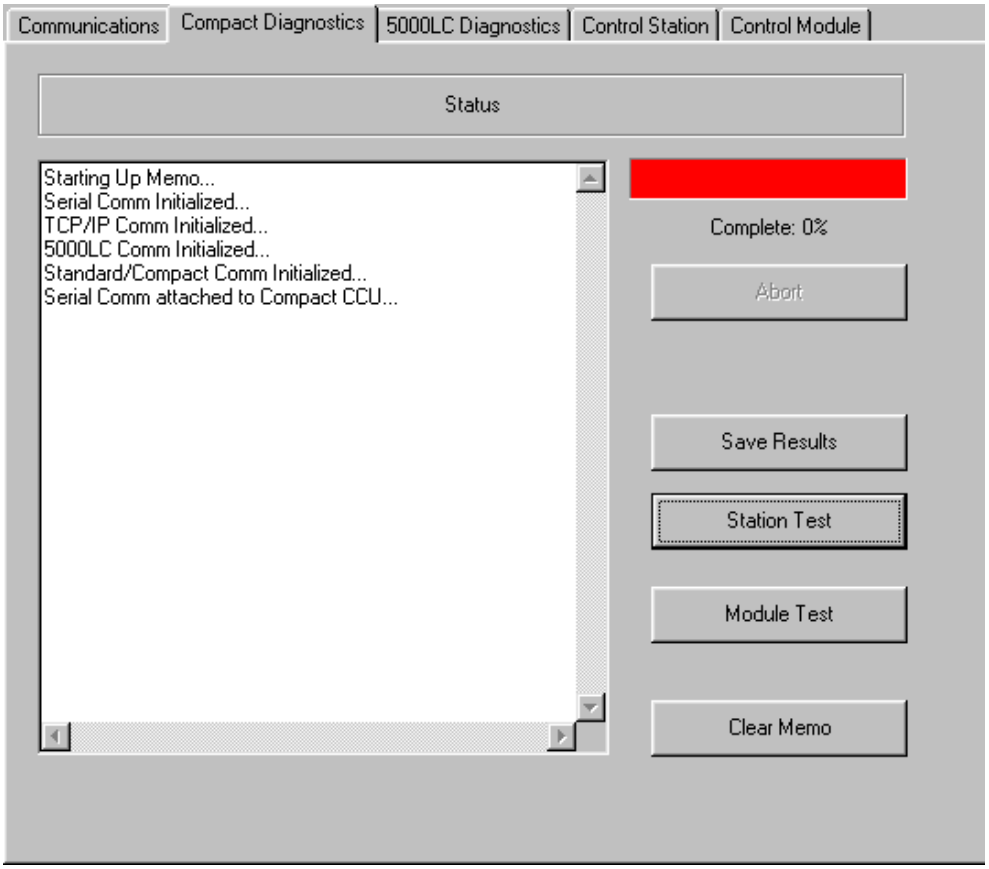
Use the functions on the Compact Diagnostics tab to perform module and keypad tests for the Compact CCU.

1. Select **To/From CCU** from the File menu.

2. Set up communications with the Compact CCU as described in “Set Up Communications” on page 236.

3. Click ▼ at the "Central Controller Type" field, and select **Compact CCU**. The Compact Diagnostics tab is enabled.

4. Click the Compact Diagnostics tab, and the following screen is displayed.



Abort After a test has started, you can click [**Abort**] to stop the test. The test stops after the current operation is completed.

Clear Memo Click [**Clear Memo**] to remove all existing text from the test results box.

Save Results Click [**Save Results**] after the tests have been run to save the test results to a file so you can view them later. A Save Memo dialog box is displayed with the *Projects* folder selected. If necessary, change to a different folder. Type the name that you want to give the text file in the "File name" text box, and click [**Save**]. The file is saved in a standard text file (*.txt*) format and can be opened in most text editors.

Station Test

Click [**Station Test**] to start the keypad communications test. Test results for all keypads found in the system are listed in the test results box. This test runs through the following five stages:

1. Each keypad port is tested for basic integrity.
2. All LEDs on all keypads are turned off.
3. A response is requested from all keypads.
4. All LEDs on all keypads are turned on.
5. A response is requested from all keypads.

The LiteTouch system must be inactive (e.g., no switch presses, etc.) during the test. If a switch is pressed during the test, no loads are activated and an error is logged.

Ports Tested for Basic Integrity

The keypad communication test starts by testing the basic integrity of the keypad ports. The keypad port numbers correspond to the following connector numbers indicated on the back of the CCU:

Port 1 - CSP1, Port 2 - CSP2

If a problem is detected, a message similar to the following is displayed:

Port 1 is Non-Functional

This message indicates one of two things: either the CCU is defective or the keypad data line is being held low. To determine the cause of the problem, remove the connector from the non-functional port and run the test again. If the error occurs again, the problem is in the CCU; if it does not, the problem is in the keypad line. Normally, a broken or open power wire causes this problem.

After all ports have passed the basic integrity test, the following message is displayed:

Port 1 Okay Port 2 Okay

LEDs Turned Off

After all ports have passed the basic integrity test, all keypad LEDs are turned off. This is indicated by the following message:

Turning off all station LEDs. Current Address -> 00

The address increments quickly from 00 to FF. There are no error messages displayed during this time.

Response Requested from Keypads

After all LEDs are turned off, a response is requested from all keypads, as indicated by the following message:

Searching for stations. Current Address -> 00

The address again increments quickly from 00 to FF.

There are two possible error messages that may appear at the end of the "response requested" portion of the test, as follows:

Reporting out of order
This error normally indicates that someone has pressed a switch during the test. It may also indicate that a keypad run is receiving an excessive amount of interference and may need to have additional pull-up resistors added to the data line. Pull-up resistors can be added at both the CCU and at the end of a keypad run. (Contact LiteTouch for assistance if you need to add pull-up resistors.)

Station reporting for the second time
A keypad reporting for the second time normally indicates that two keypads have the same address. (They must be connected to different ports on the CCU for the test to detect this problem.) This error must be corrected for the system to properly update the keypad LEDs.

If this portion of the test runs without errors, a message similar to the following is displayed:

Found 13 Stations

LEDs Turned On

After the keypad search is complete, all LEDs on all keypads are turned on, as indicated by the following message:

Turning on all station LEDs. Current Address -> 00

The address increments quickly from 00 to FF.

Response Requested from Keypads

After all the LEDs are turned on, a response is again requested from all keypads, as indicated by the following message:

Searching for stations. Current Address -> 00

The address increments quickly from 00 to FF. During this part of the test, there are three possible error messages:

Reporting out of order
(See above.)

Station reporting for the second time
(See above.)

Station not reporting with LEDs on.
This error message normally indicates one of two conditions:

- The keypad run has insufficient power and needs an additional power supply
- The power and ground wires are not sufficient in size to carry the required current.

If the output of the power supply is not falling below the minimum value, use the spare wire provided in the LiteTouch keypad wiring to double the ground. If this does not improve the response, you may need to add an additional power supply to the center or end of a keypad run.

When the final search is completed, all keypads found during the searches are listed in address order.

Module Test

Even when a LiteTouch system appears to operate correctly when buttons are pressed, a module may still malfunction. The control module communication test helps to identify periodic or infrequent errors. Click **[Module Test]** to start the control module communications test. Test results for all modules found in the system are listed in the test results box.

The control module communication test runs up to 100 loops. During each loop, a response is requested from all control modules in the system. While the test is running, the following information is displayed:

Control Module Test Active
Clearing Module Test Array
Running Test Loop Number 1

The loop count increments from 1 to 100.

The test continues until loop 100 is reached or until you click **[Abort]** in the Diagnostics tab. When you click **[Abort]**, the test continues until the current loop is finished.

The module address increments quickly from 00 to FF. When finished, the test results are shown as follows:

Control Module Test Results
Module 01 responded every loop
Module 02 ERROR -> responded only 23 times in 100 loops
Module 03 IS ASSIGNED BUT IS NOT RESPONDING

All possible messages are shown in the above example.

All modules that were found and all modules that are programmed but did not report during at least one loop are listed.

If a module reported on every loop, the module is functioning properly. If a module missed reporting on one or more loops, a problem exists. The most common problem is a broken wire. Modules will often communicate at least some of the time with a broken communication wire. If a module is programmed but does not report, either the module is defective, there is an error in its programming, it is not powered up, or it may have a phantom load. All problems must be found and corrected to ensure proper system operation.

After correcting any problems, run the module communication test again. Continue to correct problems and test until all 100 loops test error free.

Load Level Adjustment A

This appendix provides instructions for installing and using the LiteTouch Load Level Adjustment Tool software plug-in for LiteWare 3.8.

The LiteTouch Load Level Adjustment Tool is a real-time control system that allows you to make adjustments to lighting loads while the LiteTouch system is running.

You can only use the Load Level Adjustment Tool with a 5000LC CCU with an Ethernet/serial enabled CPU card.

The Load Level Adjustment Tool plug-in is available with LiteWare version 3.8 on CD or you can download it from our Web site at www.litetouch.com.

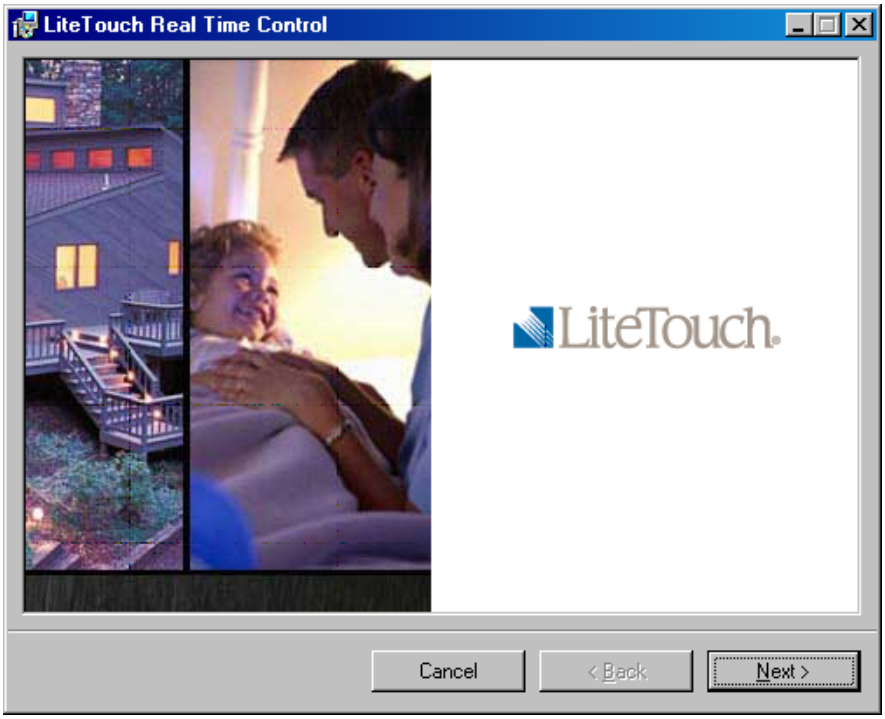
Installation

Do the following to install the LiteTouch Load Level Adjustment Tool plug-in for LiteWare 3.8 on your computer:

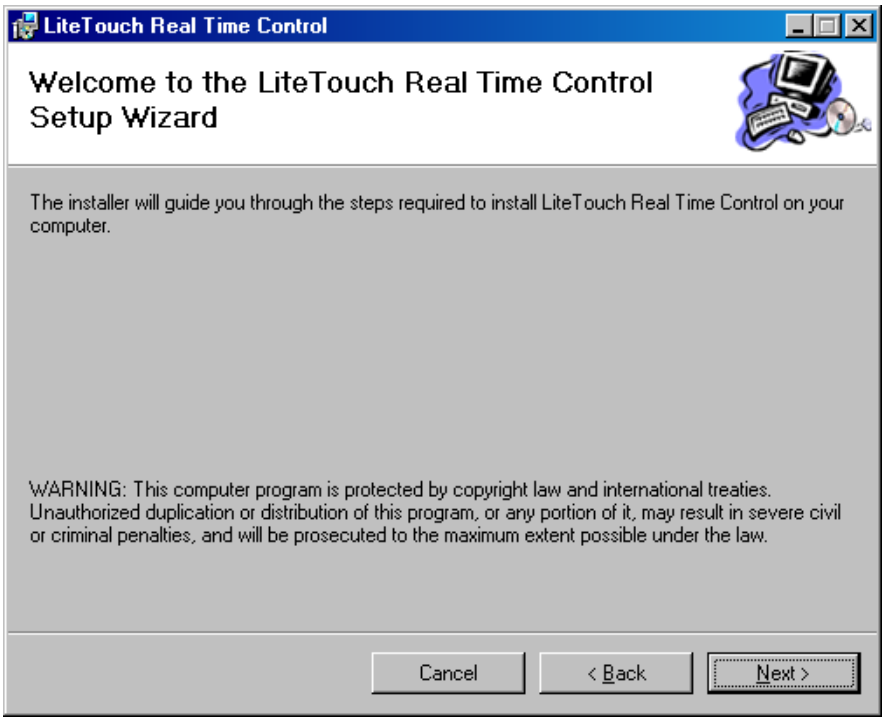
1. Close all Windows applications before starting installation.

2. Insert the LiteTouch CD in your CD-ROM drive or locate the installation file you downloaded from the LiteTouch Web site.

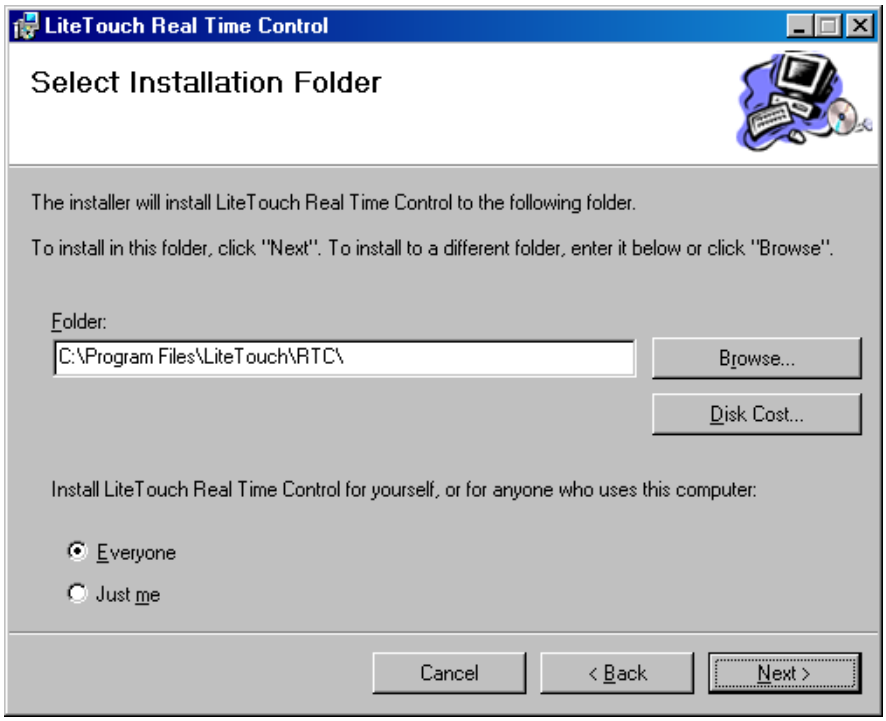
3. Go to your CD-ROM drive or the folder to which you downloaded the application, and double-click the file name, **setup.exe**. The following window is displayed.



4. Click [**Next**] to continue, and the following window is displayed.


LiteTouch Real Time Control
Welcome to the LiteTouch Real Time Control Setup Wizard
The installer will guide you through the steps required to install LiteTouch Real Time Control on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

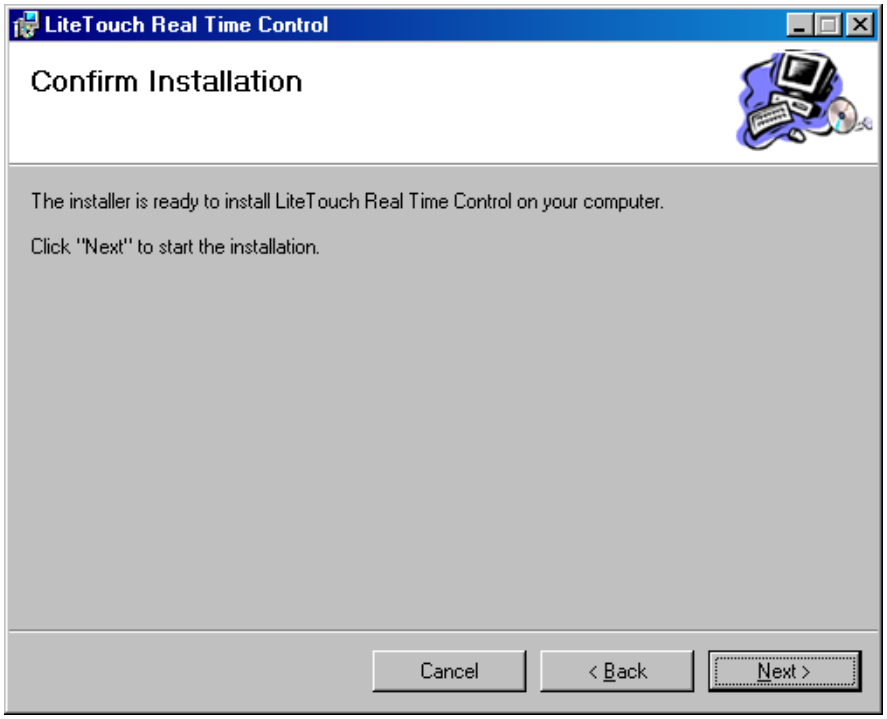
5. Click [**Next**] to continue, and the following window is displayed.


LiteTouch Real Time Control
Select Installation Folder
The installer will install LiteTouch Real Time Control to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\LiteTouch\RTC\
Browse...
Disk Cost...
Install LiteTouch Real Time Control for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

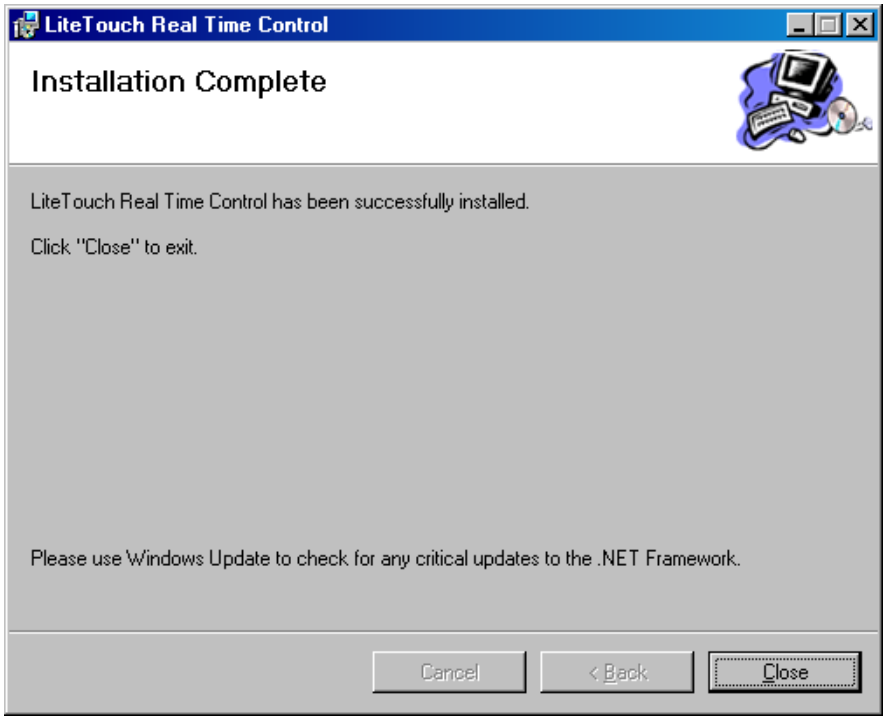
The folder to which the plug-in will be copied is shown.

6. If you want to install the plug-in in a different folder, click [**Browse**], and select or create a different folder. To display the amount of disk space the plug-in will use click, [**Disk Cost**]. Select whether you want any of the users with access to your computer to be able to use the plug-in (**Everyone**) or whether you want access limited to your login only (**Just me**). When you are ready, click [**Next**] to continue.

   The following window is displayed.


LiteTouch Real Time Control
Confirm Installation
The installer is ready to install LiteTouch Real Time Control on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

7. Click [**Next**] to start the installation. The files are copied to your hard disk, and the following window appears.


LiteTouch Real Time Control
Installation Complete
LiteTouch Real Time Control has been successfully installed.
Click "Close" to exit.
Please use Windows Update to check for any critical updates to the .NET Framework.
Cancel
< Back
Close

8. Click [**Close**] to complete the installation process.

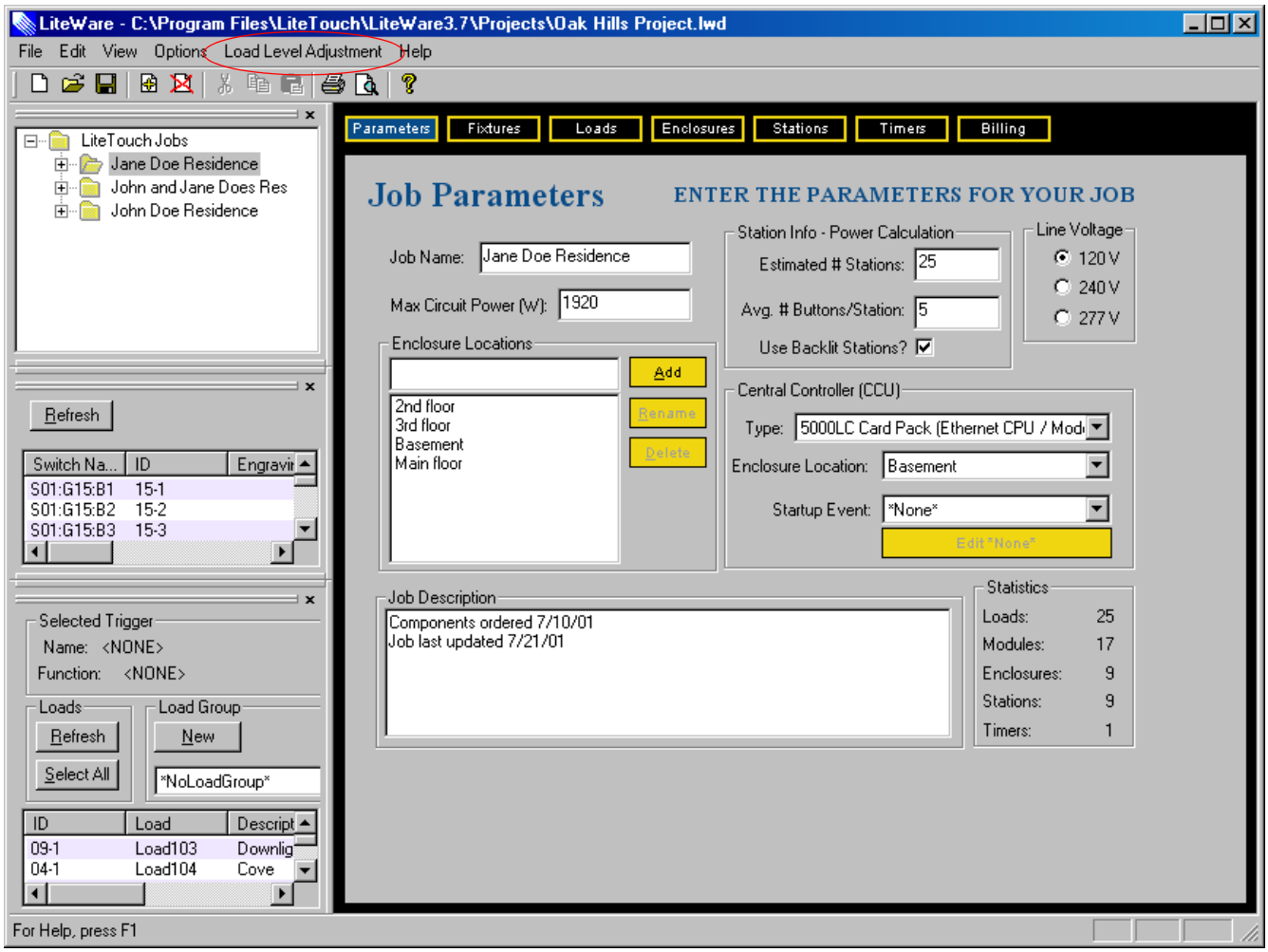
Start Load Level Adjustment Tool

To set up and start the Load Level Adjustment Tool, take the following steps.

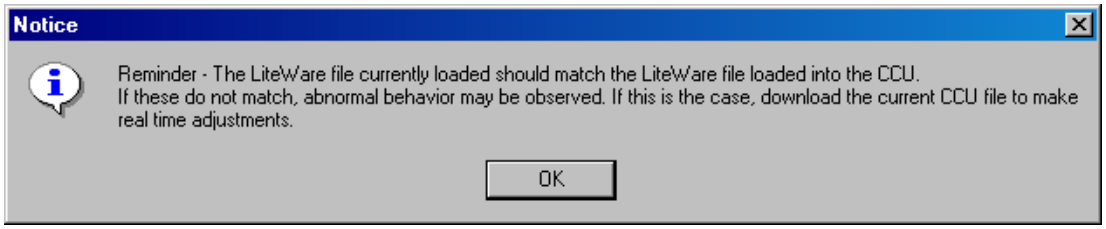
1. Connect a network cable to the Ethernet port on the 5000LC and to your network. If you are connecting a computer to the 5000LC, you need to use a cross-over network cable. You can connect the network cable to the CCU with power turned on. You can also use a wireless Ethernet router connected to the Ethernet port on the CCU.

2. Start LiteTouch 3.8 (see "Start/Exit LiteWare 3.8" on page 13).

3. Select the job for which you want to adjust load levels.

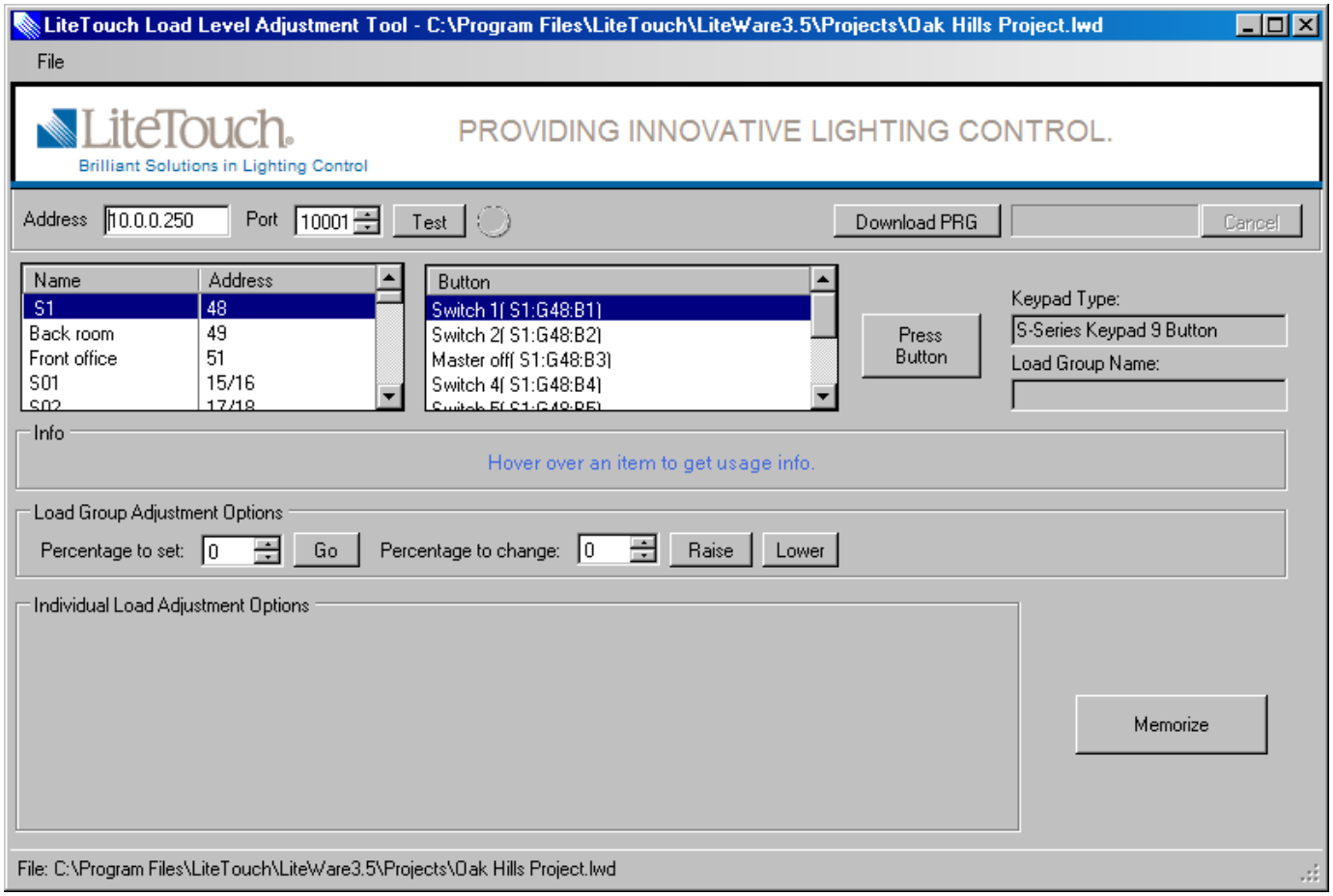


4. Pull down the Load Level Adjustment menu on the LiteWare menu bar, and select [**Open Load Level Adjustment**]. The Load Level Adjustment Tool plug-in is started, and the following prompt is displayed.


Notice
Reminder - The LiteWare file currently loaded should match the LiteWare file loaded into the CCU.
If these do not match, abnormal behavior may be observed. If this is the case, download the current CCU file to make real time adjustments.
OK

You should have already uploaded to the CCU the program file for the job you opened so that the job in LiteWare and the program file in the CCU match. If they do not match, close Load Level Adjustment, and upload the file. Refer to “Export Program File” on page 230 for information on converting a job to a program file and to “Upload a Program File to the CCU” on page 240 for information on uploading the file.

5. Click [**OK**] to close the prompt, and the Load Level Adjustment Tool is displayed.



6. The tool is in "normal" mode by default. You can also place it in "demo" or "offline" mode. Pull down the File menu and select the mode, as follows:

   Offline Mode
   Select this mode if you want to review the loads without being connected to the CCU.

   Demo Mode
   Select this mode to open a demo program file to try out or learn the tool without being connected to the CCU.

   To put the tool back into normal mode, deselect "Offline Mode" or "Demo Mode."

7. To connect to the CCU, enter the IP address and port of the 5000LC CPU card.

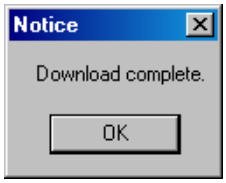
   Address
   Enter an IP address for the Ethernet/serial enabled CPU card. If the card is using its originally assigned address, enter the number from the sticker on the front of the card. If the server has assigned the 5000LC a different address, you need to obtain the address from the network administrator.

   Port
   Enter the 5000LC port number, which is 10001.

8. In normal mode, click [**Test**] to verify the connection with the CCU. If a connection is established, the round button next to the [**Test**] button will flash green. If there is no connection, the button will flash red.

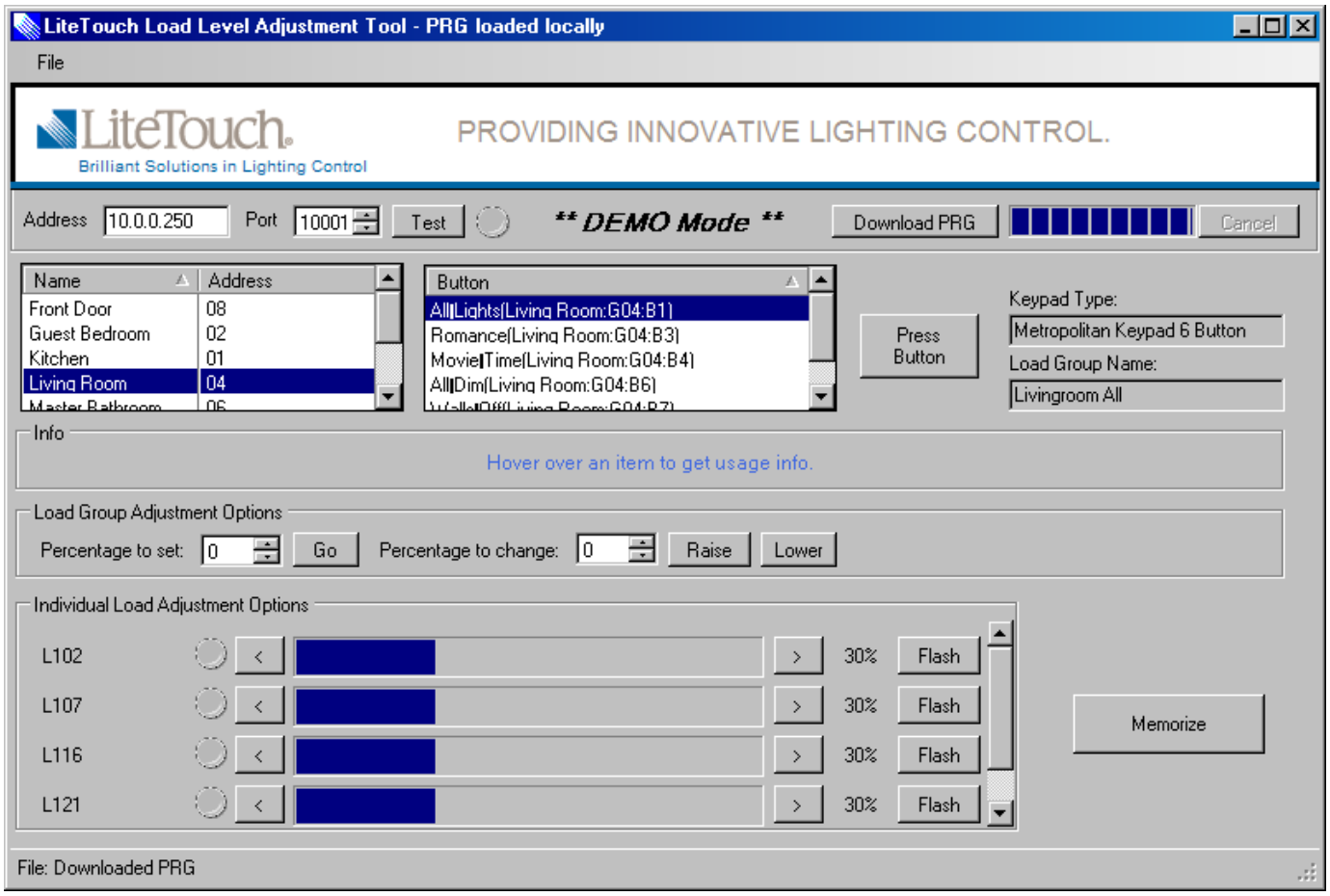
9. With connection to the CCU established, click [**Download PRG**] to download the program file from the CCU. You will make changes directly to the program file in the CCU with the Load Level Adjustment Tool.

   After the program file has been successfully downloaded, the following prompt appears.

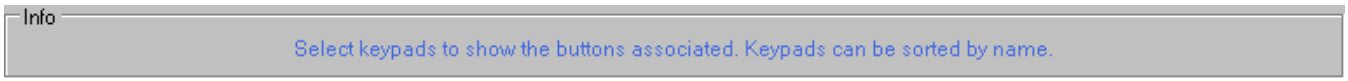


10. Click [OK] to close the prompt and continue.

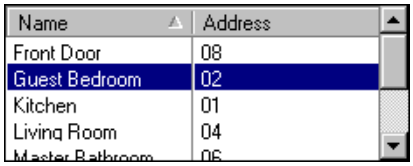
When the program file has been downloaded, the keypads in the job are listed by name and address in the box on the top, left side of the window.



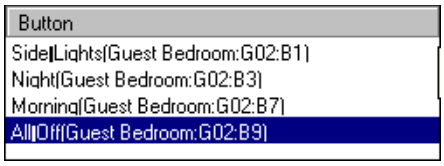
Position the mouse pointer over an item in the window to display a Help message describing the item in the “Info” section.



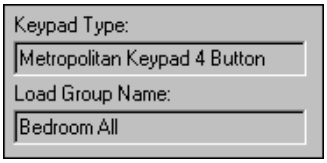
Click the title bar of the “Name” column to sort the keypads alphabetically by name.



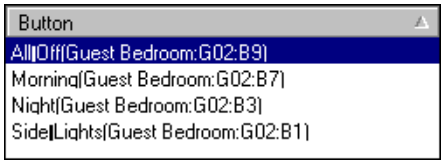
Click a keypad to display the names of the buttons on the keypad in the "Button" list on the right.



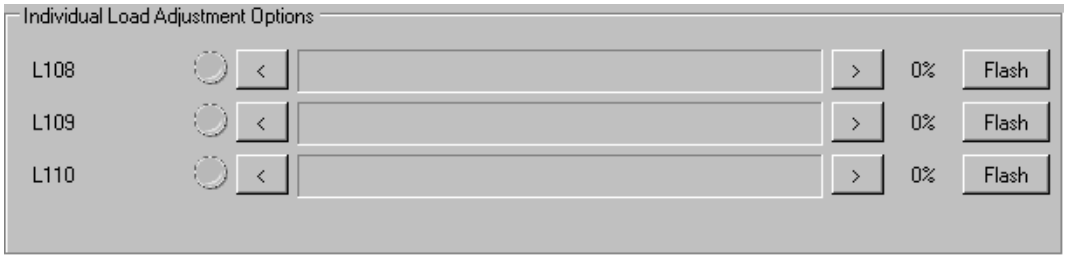
The keypad type and load group name are displayed on the top right side of the window.



Click the title bar of the "Button" list to sort the buttons by name.



Click a button to display the loads for the button at the bottom of the window.

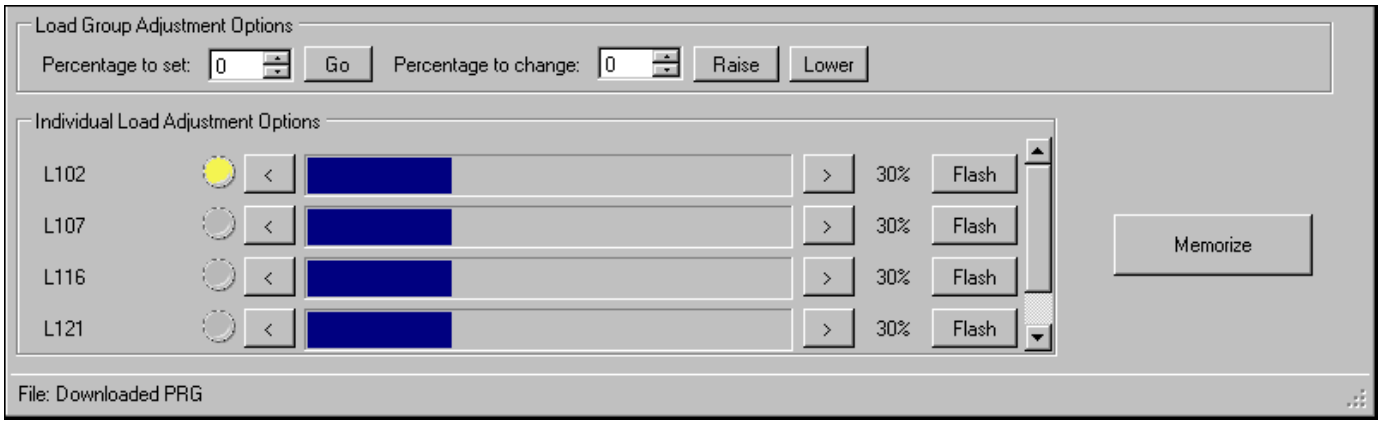


Select a button and click **[Press Button]** to send a switch press to the CCU (or double-click the button name in the list).

Adjust Load Levels

There are several ways to change the load levels, or intensity, of the loads in the selected load group. You can adjust all of the loads in the load group by a percentage, or you can adjust each load individually.

When you select a button, all loads in the load group are displayed at the bottom of the window. Each load's preset or current load level is shown as a percentage in an intensity slider. The load number (from the LiteWare job) for each load is shown on the left. If a load is on, the round button next to the slider is yellow; if a load is off, the button is gray. The percentage of total output for each load is displayed on the right.



Flash Click **[Flash]** next to a load to turn the load quickly on and off to help you identify it in the room.

Memorize When you have finished adjusting loads to the desired levels, click **[Memorize]** to save the changes to the CCU program file. Remember that the job in LiteWare will not reflect the changes as your adjustments are saved to the CCU only. You can download the program file from the CCU to update the job in LiteWare (see "Download a Program File from the CCU" on page 241).

Load Group Adjustment Options

Use the load group adjustment options to change the intensity of all the loads in the selected load group by the same amount. You can adjust the intensity from 0 to 100% (where 0 is no light and 100 is full brightness).

Use either of the following options to adjust load levels for a load group.

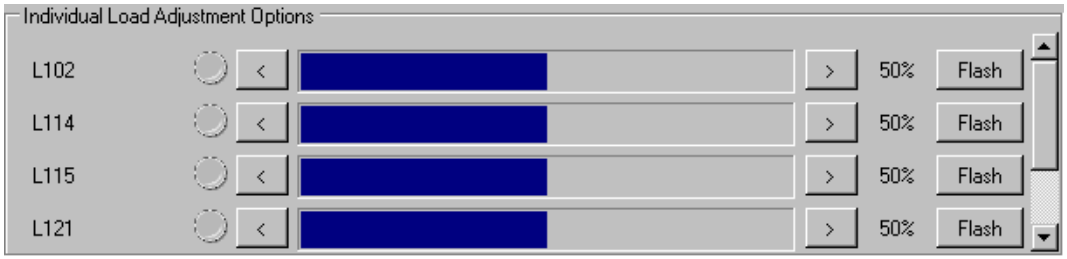
Percentage to Set To set all loads in the load group to a specific percentage of intensity, enter the percentage, or use the spinbox arrow buttons to increase or decrease the percentage one percentage point at a time.

Percentage to Change To raise or lower the intensity of all loads in the load group by a percentage, enter the percentage by which you want to change the load levels, or use the spinbox arrow buttons to increase or decrease the percentage one percentage point at a time. Then click [**Raise**] to raise the load levels, or click [**Lower**] to lower the levels, by the specified percentage.

Individual Load Adjustment Options

Use the individual load adjustment options to change the intensity of each load separately. You can adjust the intensity from 0 to 100% (where 0 is no light and 100 is full brightness).

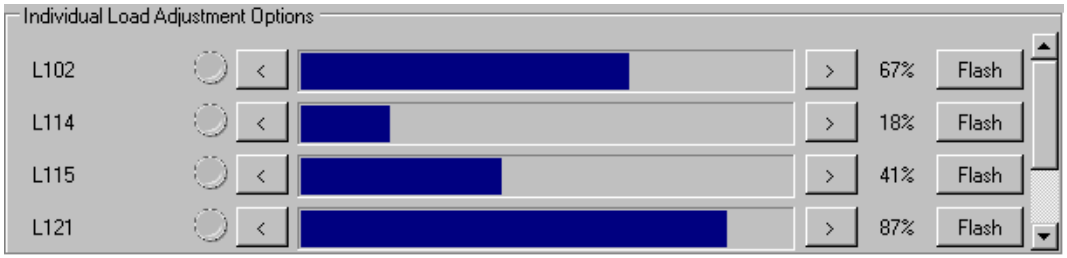
Each load's preset or current load level is shown as a percentage in an intensity slider. The load number (from the LiteWare job) for each load is shown on the left. If a load is on, the round button next to the slider is yellow; if a load is off, the button is gray. The percentage of total output for each load is displayed on the right.



Use either of the following options to adjust individual load levels.

- Click in the intensity slider. The blue indicator bar jumps to the position at which you click. You can hold down the mouse button and drag the bar to the desired position. The change in percentage is shown on the right.

- Click the left arrow button to lower the intensity one percentage point at a time. Click the right arrow button to raise the intensity one percentage point at a time.



Troubleshooting

Use the following table to help you troubleshoot problems with the Load Level Adjustment Tool.

Problem	Solution
5000LC program file won't load.	Make sure you entered the correct IP address.
	Wireless network users: Make sure you have a sufficient signal from the wireless access point.
Moved the intensity slider and nothing happened.	Make sure you have selected the correct keypad and button.
	Wireless network users: Make sure you have a sufficient signal from the wireless access point.